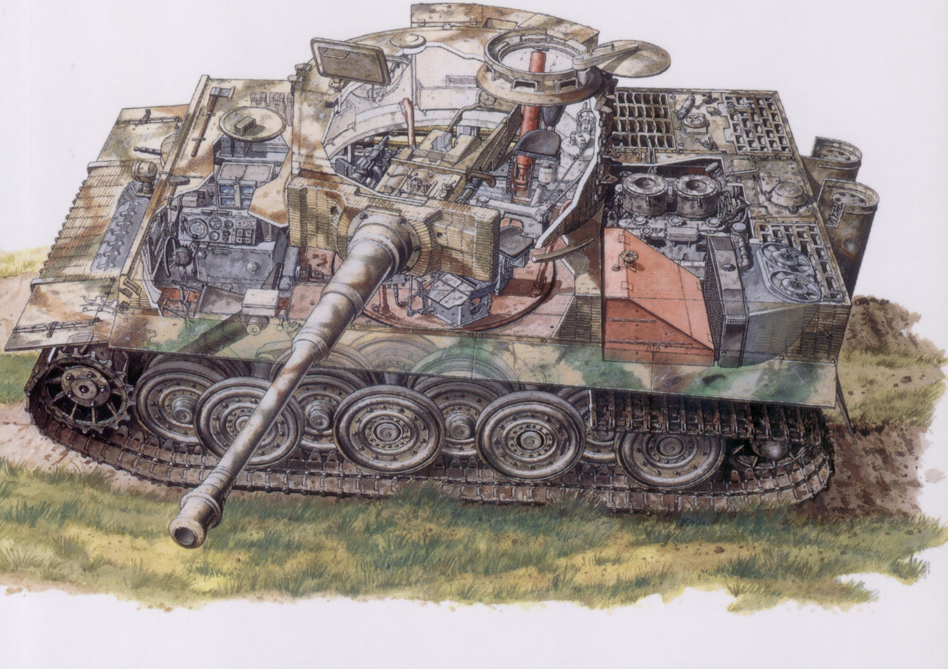
New Vanguard

Tiger I Heavy Tank 1942–45



Tom Jentz & Hilary Doyle • Illustrated by Peter Sarson

TIGER I HEAVY TANK 1942–45

INTRODUCTION

Probably the most famous tank of the Second World War, the Tiger I was, ironically, quickly designed utilising components that had been partially tested in previous heavy Panzers. The chassis had been invented primarily for the 30 and 36-ton class of heavy Panzer in the DW series from Henschel & Sohn GmbH, Kassel. The gun and turret were designed by F.Krupp AG, Essen for the 45-ton Panzer conceived by Dr ing h.c.F. Porsche KG, Stuttgart.

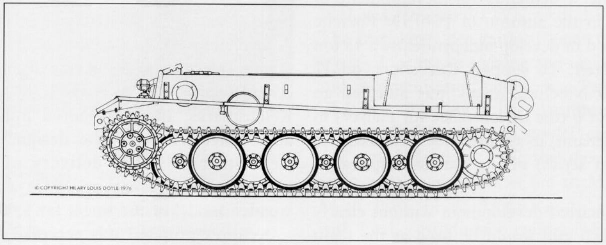
While limited development of heavy Panzer designs had commenced in 1937, the first serious efforts resulted from a meeting with Hitler on 26 May 1941. Design of the Tiger I was thus not initiated as a response to the T-34 and KW tanks encountered following the German invasion of Russia on 22 June 1941. Instead, the main concerns addressed during this meeting were the problems of successfully combating British tanks and anti-tank guns. However, after the appearance of the T-34 and KW, the design and production of an effective heavy Panzer was pursued with increased urgency.

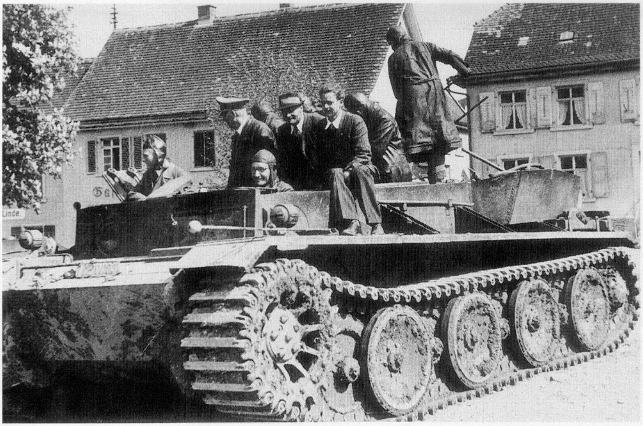
During more than 22 years of research, the authors have unearthed thousands of surviving original records from design and production firms, the Heeres Waffenamt (army ordnance department), the office of the Generalinspekteur der Panzertruppen (Guderian), and operational reports from Tiger units. All information given is based solely on the contents of these original documents and is backed by observations made by the authors climbing over, under, around and through the four Tiger Is that still exist in the West. Due to the many misinterpretations in published material and inaccuracies in reports prepared by Allied intelligence units during the World War 2 and the immediate post-war period, these have not been used in assembling this book.

Many interesting facts obtained from the original documents have been included: the true origin and development of the Tiger I; the reasons behind many key decisions; the precise production history; the important modifications that occurred during the production run; and the organisation and exact number of Tigers issued to each of the combat units.

If any one of several key circumstances had been slightly altered, a completely different heavy Panzer would have been built instead of the now famous Tiger I. Among those key circumstances that helped to create the Tiger I were: problems with the automotive design for the Porsche-Tiger; Krupp's ability to maintain a monopoly on tank guns; inadequate supplies of tungsten for armour piercing

A 1:76 scale drawing of the Henschel VK 36.01 chassis. After the decision was taken to install deep fording equipment this was superceded by the heavier VK 45.01. Before the VK 36.01 was cancelled it was proposed to mount a turret fitted with a 7.5 cm Waffe 0725 tapered bore gun. (Author)





Henschel were not originally involved in the 45 ton heavy tank project as they had been tasked with the development of a 36 ton medium tank with 80 mm frontal armour. The designation of which was Panzerkampfwagen VI Ausführung B (VK 36.01). Upgraded from the previous attempts with experimental tanks in the DW series, it was powered by a Maybach HL174 450 metric HP motor, had Maybach Olvar transmission, torsion bar suspension and large diameter interleaved wheels. (Spielberger collection)

rounds; the report by Porsche that the higher performance 8.8 cm Flak gun invented by Rheinmetall couldn't be mounted in the existing turret design; and the ease with which the previously designed VK 36.01 Fahrgestell (fully tracked, 36 ton class, 1st model, chassis) could be modified to accommodate the larger turret already designed by Krupp for the VK 45.01 (P).

DESIGN AND DEVELOPMENT

Since the Heeres Waffenamt were hesitant in yielding to Hitler's demands for development of heavy Panzers, in the autumn of 1940 Dr Porsche was commissioned to develop independently a 45 ton Panzerkampfwagen. To support this effort, on 12 November 1940 Nibelungenwerk was awarded an order by Wa Prüf 6 (the design office for Panzers in the Heeres Waffenamt) to assemble the Versuchsserie (trial production series) of the Panzerkampfwagen VI (Porsche).

Porsche had started development without clearly establishing which gun would be used as the main armament. To prevent another firm from breaking into Krupp's virtual monopoly on tank guns, in February 1941 Dr Müller of Krupp sought a teaming agreement with Porsche. proposing that an 8.8 cm KwK L/56 (840 m/s initial muzzle velocity, with complete rounds 931 mm long) be used in the new heavy Panzer. This gun was based on the same gun tube and ammunition as the proven 8.8 cm Flak 18 L/56.

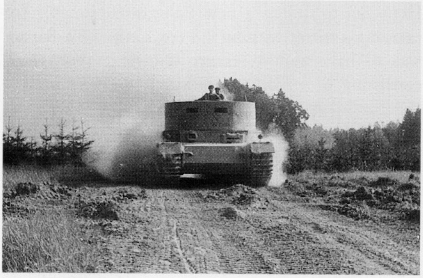
In an internal meeting on 2 April 1941, Krupp discussed the possibilities of two alternative guns. Conceptual designs for an 10.5 cm KwK L/47 (840 m/s initial muzzle velocity, with complete rounds 1100 mm long) and an upgraded 8.8 cm KwK L/56 (940 m/s initial muzzle velocity, complete rounds still 931 mm long, but with larger diameter shell cases) were to be completed by 18 April 1941.

By 25 April 1941, the 8.8 cm KwK L/56 had been selected, as related in a priced proposal to Nibelungenwerk for: six turrets, 80 mm frontal and 60 mm side armour, turret ring diameter of 1900 mm, complete with 8.8 cm KwK L/56, each at 110,000 Reichsmarks; three armoured hulls fabricated in accordance with Porsche design, each at 75,000 Reichsmarks, initial delivery of the first hull planned for November 1941; and a full-scale wooden model of the turret for 5,000 Reichsmarks.

Krupp's proposal was accepted by Nibelungenwerk, who placed an urgent order on 13 May 1941. The wooden model of the turret was completed by Krupp for delivery to Nibelungenwerk by 20 May 1941.

The most important meeting, one which greatly influenced the future development of the heavy Panzers, took place with Hitler on 26 May 1941. After reviewing the current status and plans for the development of Panzers and anti-tank weapons, Hitler made the following decisions: the development of both of the heavy Panzers from Dr Porsche and Henschel was to be accelerated so that six of each would be available in the Summer of 1942, it was considered necessary to make the frontal armour 100 mm thick – 60 mm was sufficient for the sides of the Panzers. An 8.8 cm KwK was to be retained for the Porsche design, but its effectiveness was to be upgraded to that achievable by the 8.8 cm Flak 41 designed by Rheinmetall. The effectiveness of the 8.8 cm KwK and the armour piercing round were to be increased so that 100 mm thick armour plate could still be penetrated at a range of about 1500 m.

In response to Hitler's decisions Porsche KG was commissioned by Wa Prüf 6 on 21 June 1941 to determine if it was possible to mount the 8.8 cm Flak 41 instead of the 8.8 cm KwK L/56 in the turret already designed for the VK 45.01 (P). Porsche responded by telegram on 10 September 1941 that only the 8.8 cm KwK L/56 could be considered for the VK 45.01 (P). Therefore, the decision was made to complete only the first 100 VK 45.01 (P) with the turret originally designed by Krupp for the 8.8 cm KwK L/56 instead of the more effective tank gun based on the 8.8 cm Flak 41 as ordered by Hitler.



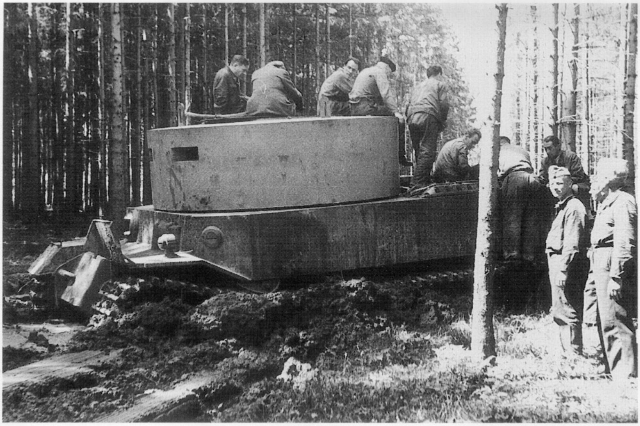
In Autumn 1940, Prof. Dr. Porsche was commissioned to develop a 45 ton tank, later designated VK 45.01 (P). Later it was decided to mount an 8.8 cm gun. Nibelungenwerk in Austria was awarded the assembly contract. This VK 45.01 (P) chassis is under test. (Spielberger collection)

Krupp received a contract to fabricate the armoured components for 100 hulls and turrets for the VK 45.01 (P) and to assemble the turrets in operational condition and ship them for mounting on the Fahrgestelle assembled at Nibelungenwerk. The first eight turrets had lower sides and a flat roof with a raised centre section to allow the gun to be depressed through a larger arc. The rest of the 92 turrets had the higher sides and slanted roof typical of the Tiger I.

The new hull design for the VK 45.01 (P) had 100 mm thick armour plates on the front, 80 mm on the sides and rear, 25 mm deck and 20 mm belly. Porsche chose to install a petrol/electric drive train. Power was provided by, two 10-cylinder, air-cooled, 15 litre, Porsche Typ 101/1 engines (rated at 320 metric hp at 2400 rpm) were each coupled to a matching electric generator. The electricity generated was used to drive two electric motors, one for each track and steering was controlled by regulating the electric power supplied to each motor. The complete drive train was designed to propel the tank at up to 35 km/h. A longitudinal torsion bar suspension was upgraded to support the additional weight. The combat loaded weight of 59 metric tons was distributed over three pairs of steel-tyred, rubber-cushioned roadwheels per side travelling on unlubricated 640 mm wide tracks with a track of 130 mm.

The official Wa Prüf 6 designation from 5 March 1942 was PzKpfw VI (VK 45.01 P) (Ausführung P). The Inspekteur der Panzertruppen (In6) designation, specified for use in training and maintenance manuals and in organisation tables, was Panzerkampfwagen VI P (8.8 cm) (SdKfz 181) Ausführung P. Suggested names were 'Tiger (P)', 'Tiger P1' or 'Porsche Tiger'.

From 5 January 1942 the monthly production goals were established as ten in May, ten in June, 12 in July, 14 in August and 15 in September, with further production continuing at the rate of 15



The VK 45.01 (P) was a totally new design, with a new aircooled motors designed by Porsche, Siemens electric drive train and horizontal torsion bar suspension. Despite the clever concept too many components were new and untested. The urgency of the production schedule would not tolerate the problems that occurred with these untested components, therefore, the production was cancelled. (Spielberger collection)

per month. The first VK 45.01 (P) was completed in April 1942 in time for a demonstration on Hitler's birthday. The second, completed in June, was sent to Kummersdorf for gun firing and other tests. Problems with the engine and suspension delayed further production and in September 1942, Nibelungenwerk reported that assembly of the Tiger (P) had stopped because Engines and suspension parts had not arrived. At this time five Tiger (P)s were undergoing trials at the troop training grounds at Dollersheim.

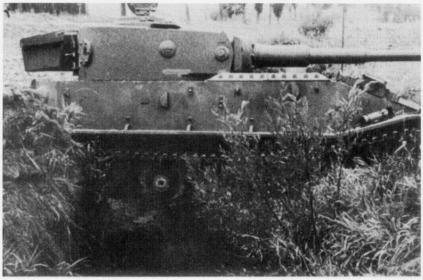
Between 26 and 31 October 1942, a Tiger-Kommission met to determine which model, the Tiger (H) or Tiger (P) would be chosen for further series production. During the subsequent comparative trials, the Henschel Tiger proved to be superior and was therefore selected. In the status report for October 1942, Nibelungenwerk reported that Tiger (P) production had been discontinued. A total of ten Tiger (P)s (Fgst Nr 150001 through 150010), had been assembled by Nibelungenwerk before the end of October 1942. From the original order for 100 VK 45.01 (P) 90 turrets were converted for mounting on the Tiger I; 90 hulls were converted for the Ferdinand Panzer-Jäger; three hulls were converted for Bergefahrzeuge (recovery vehicles); three Fahrgestelle were completed with Ramm-Tiger superstructures; 4 complete PzKpfw VI (VK 45.01 (P) with Turm Nr 150004, 150005, 150013, and 150014 were retained for further tests and trials.

Before October 1942, Porsche had designed a Typ 102 which was virtually the same Panzer as the Typ 101, but with a Voith hydraulic drive in place of the electric drive. On 17 February 1943, Dr Porsche reported that a Tiger P1 with hydraulic drive was being completed at Nibelungenwerk.

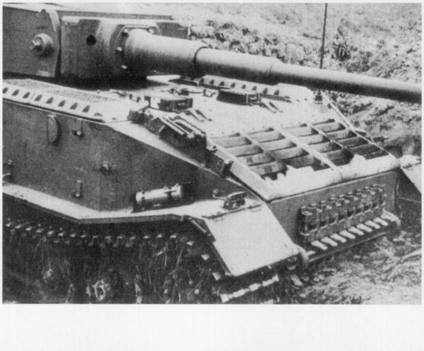
The Henschel Model

On 28 May 1941, Wa Prüf 6 placed an order with Henschel to design a new Fahrgestell suitable for carrying a turret with an 8.8 cm KwK This Panzer was to have a new feature known as Vorpanzer consisting of a frontal armoured shield to protect the tracks and drive sprockets. This order was based on the meeting with Hitler on 26 May 1941, where the current design status of the heavy tanks had been discussed and directives for future actions established. Before the meeting, Henschel had not contemplated mounting an 88 mm gun turret on their VK 36.01 Fahrgestell but had closely followed specifications and orders originating from Wa Prüf 6. At the same time another order to alter the VK 36.01 was also given a high priority and tough deadlines. Therefore, Henschel did not immediately pursue the option for an 8.8 cm gun turret. Instead, they concentrated on the high priority order to modify the VK 36.01 Fahrgestell to carry a turret with the tapered bore Waffe 0725.

During the meeting on 26 May 1941, a major design breakthrough was achieved as a result of the decision to install deep fording equipment. Freed from the weight restrictions imposed by bridges, the designers could specify heavier armament and armour protection which drastically increased the weight of the vehicle. Previously, Wa Prüf 6 had never aggressively pursued the design of Panzers above the 30-ton class due to the perceived tactical handicap associated with Panzers dependent on the location and existence of heavy bridges. Another justification for exceeding the 30-ton weight class was that the warfare would be conducted in the hinterlands of Europe where suitable weight bearing bridges did not exist. However, the designers still had to meet the restrictive specifications governing the maximum dimensions for rail transportation.



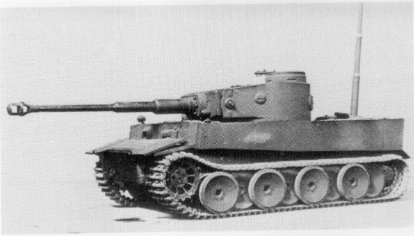
ABOVE AND BELOW *A VK 45.01 (P) complete with one of the first eight Krupp designed turrets, the roof of which was sloped in one piece from the rear. The centre section was raised to accommodate the 8.8 cm KwK L/56 when it was depressed. From the 9th turret the appearance was the same as that which became familiar on the VK 45.01 (H). (Spielberger collection)*



The decisions that specifically created the VK 45.01 (H) have been preserved in a letter written on 27 September 1941 by Oberst Fichtner, head of Wa Prüf 6. In response to a further directive from Hitler, tapered bore weapons were not to be used in production series Panzers. With limited modifications, the turret with the 8.8 cm KwK L/56 designed by Krupp for Dr Porsche had to be adopted for the PzKpfw Typ Henschel. No other options could have met the demanded schedule. Henschel, leaving them was left with no other choice but to create a design for a Panzer in the 45 metric ton class by modifying the VK 36.01 Fahrgestell.

Thus, the VK 45.01 (H) was not created by following the standard practice of controlled design projects that were defined by careful implementation of a systematic series of conceptual and design stages. Instead the Henschel model came into being as a rush job, quickly assembled from a mixture of components available from previous heavy Panzer designs. From the Henschel DW Fahrgestell series came the: Maybach Olvar 40 12 16 Schaltgetriebe (transmission) and Henschel L600C Lenkgetriebe (steering gears), as well as the entire suspension and running gear including: Seitenvorgelege (final drives); Triebrad (drive wheel with sprocket); Laufrad (roadwheels); Drehstäbe (torsion bars); Stossdampfer (shock absorbers); Leitrad (idler wheel); and Kgs 63/520/130 Verladekette (rail transport track). The only new, major components inside the VK 45.01 (H) Fahrgestell were the Maybach HL 210 powerplant, fuel tanks, cooling system, and deep fording provisions.

From the Porsche VK 45.01 (P) came the turret designed by Krupp, mounting the 8.8 cm KwK L/56 and the Henschel turret design remained fundamentally the same as the original Porsche turret. Minor modifications implemented to create the VK 45.01 (H) turret design included a different turret travel lock, traverse drive motor (hydraulic



To meet the demand that the production program start in 1942, the VK 45.01 (H) was quickly created by redesigning the VK 36.01. Which was uparmoured, sponsons were added over the track and adapting the turret designed by Krupp for the VK 45.01 (P). An additional set of outer wheels was fitted to support wider tracks and a Maybach HL210P45 650 metric HP motor provided the extra power needed for the heavier tank. The deep fording air intake is raised in this picture. A new feature was the Vorpanzer (frontal shield) which could be lowered to protect the tracks and drive sprockets. However, this feature was quickly dropped, having only been fitted on this Versuchsserie Tiger Nr. 'V1'. (Spielberger Collection)

replacing electric) and drive for the azimuth indicator.

The turret was designed in a horseshoe shape with the open end covered by the 100 mm thick gun mantle. The armour thickness was 80 mm for the turret walls with 25 mm for the turret roof. Access to the turret was provided through a hatch in the cupola and a hatch directly over the loader's position. An exhaust fan was mounted behind the loader's hatch on the turret roof.

Adequate vision devices provided all-round viewing for the crew in the turret. The gunner had a binocular Turmzielfernrohr 9b sighting telescope with 2.5X magnification and a vision block to his left, the loader a vision block to the right front and a pistol port to the right rear and the commander had all-round vision blocks in the cupola and a pistol port to the left rear. Secondary armament was provided by an MG34 mounted coaxially to the right of the main gun and a second MG34 could be mounted on the cupola ring for anti-aircraft defence.

On 25 July 1941, Krupp was given an order from Wa Prüf 6 to complete a full-scale wooden model of the VK 45.01 Turm (Porsche) for the Henschel-Fahrgestell and delivered it on 18 November 1941. On 23 January 1942, Wa Prüf 6 presented Krupp with an order to complete three operational VK 45.01 turrets for the Versuchsserie. Krupp's annual report stated that it had volunteered to produce the armoured components and assemble finished turrets for the three Henschel Versuchsserie Panzers in order to prevent the appearance of showing favouritism toward Porsche. The first VK 45.01 (H) Turm with 8.8 cm KwK 36 Nr 1 and Turmzielfernrohr 9b Nr 3 was assembled by Krupp and sent to Henschel on 11 April 1942. The turret was mounted on the Henschel VK 45.01 (H) Versuchsfahrgestell Nr. V1 and was inspected on 15 April 1942.

Hull design

The new Fahrgestell for the VK 45.01 (H) was created by altering the hull design for the VK 36.01. The superstructure sides were extended out over the tracks to create panniers, limited in their width due to restrictions for rail transport. These extensions were used to house the radiators, which were relocated on both sides so that the centre engine compartment could be sealed leak-tight for deep fording. There was a large, hinged rectangular hatch over the engine compartment. Unlike previous designs where the superstructure was bolted to the hull along a flange, in this case it was welded to the hull. Access for maintenance of the engine, cooling system, and fuel system was provided by unbolting the sections of the rear deck.

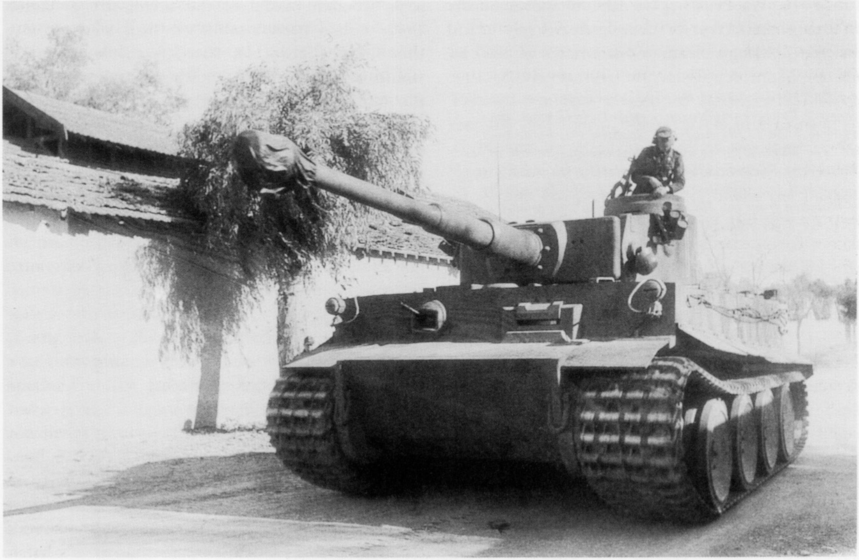
The Armour consisted of the driver's front plate whichwas 100 mm at 9°, front nose plate 100 mm at 25°, superstructure side plates 80 mm at 0°, hull side plates 60 mm at 0° vertical, tail plate 80 mm at 9°, deck plates 25 mm at 90° horizontal, and belly plate 25 mm horizontal.

A total of 92 rounds of ammunition was carried for the main gun of which 64 rounds were stored horizontally in covered bins in the panniers along the superstructure sides. Anothet 16 were located in closed bins along the hull sides, six in a closed bin under the turret floor, and six in a closed bin beside the driver.

The driver had a visor mounted in the front plate which for more protection could be closed and he could use the Fahrerfernrohre (twin driver's periscopes). A fixed periscope in the driver's hatch provided him with a view toward the left front. The radio operator had a Kugelzielfernrohr 2 (sighting telescope) to aim the ball mounted MG34 and a fixed periscope in the hatch above his head.

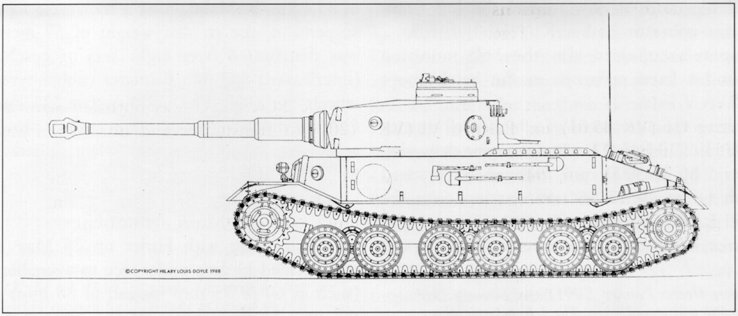
The drive train consisted of a high performance Maybach HL 210 P45, 12 cylinder engine delivering 650 metric hp at 3000 rpm, through an 8 speed Maybach Olvar 40 12 16 transmission onto the Henschel L 600 C double radius steering gear and final drives, designed to provide a maximum speed of 45.4 km/h. Maintaining a transverse torsion bar suspension, the combat weight of 57 metric tons was distributed over eight sets of geschachtelte (interleaved) 800 mm diameter rubber-tyred road-wheels per side. The unlubricated 725 mm wide, Geländeketten (cross-country tracks) provided an acceptable ground pressure (when the tracks sank to 20 cm) of 0.735 kg/cm2.

The Schwere Heeres Panzer Abteilung 501 was issued Tigers with Fahrgestell Nr. 250011 to 250033 (chassis numbers) which were delivered from September to November 1942. These Tigers were prepared for tropical use by fitting of; Feifel air filters, mudguards on the superstructure sides and a stowage bin on the turret. The 501st was shipped to Tunisia between November 1942 and January 1943. The 1.Kompanie also implemented their own distinctive modification by repositioning the Bosch headlights from on top to mountings in front of the superstructure front plate. The narrow curved front mudguards, as seen on this Tiger, tactical number 142, was a feature of Tigers built before November 1942. (Bundesarchiv)



Main armament

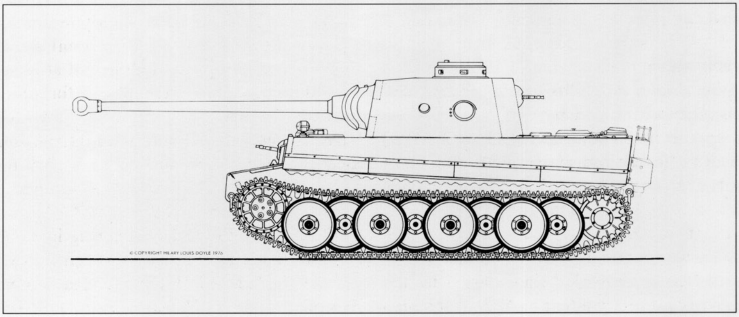
In the meeting with Hitler on 26 May 1941, it was decided to give preference to a smaller calibre (such as 60 or 75 mm instead of 88 mm) gun for the new heavy Panzers, if the same penetration ability (100 mm at a range of about 1500 m) could be achieved. A smaller calibre gun had inherent advantages; the size of the rounds allowed a larger number to be stowed and the turret would weigh less. The calibre that was chosen had to be suitable for defeating tanks, emplacements, and bunkers. From the previous designs, the 8.8 cm KwK required a turret ring diameter of 1850 mm, compared to 1650 mm for the tapered bore 7.5 mm Waffe



A 1:76 scale drawing of the VK 45.01 (P), Porsche Tiger. The drawing shows one of the first eight Krupp designed turrets, the roof of which was sloped in one piece from the rear. The centre section was raised to accommodate the 8.8 cm KwK L/56 when it was depressed. (Author)

0725. This resulted in an increased weight of 2.2 metric tons for a turret with 80 mm frontal and 60 mm side armour.

In accordance with Hitler's directive, on 17 July 1941, Wa Prüf 6 gave Rheinmetall an order to design a turret with a gun which could penetrate 140 mm of armour at a range of 1000 m, without expressly requiring that an 88 mm calibre gun be used. Rheinmetall's solution was a 7.5 cm KwK L/60 with a normal cylindrical gun tube based on the design of its 7.5 cm Pak 44 L/46 demanded by Hitler. The 7.5 mm gun barely met the specification, so Rheinmetall extended the barrel length to L/70 (which became famous as the 7.5 cm KwK 42 L/70 mounted in the Panther) and delivered a full scale wooden model of the turret. By 5 March 1942, it had been established that, starting with the 101st Tiger (H), the 7.5 cm KwK L/70 would be mounted in the Rheinmetall turret and the tank designated the PzKpfw VI H (7.5 cm L/70) Ausf. H2. On 15 July 1942, however, the decision was taken to continue production of the Ausf. H1 with the 8.8 cm KwK L/56. As a result the order for the Ausf. H2 equipped with the 7.5 cm gun was cancelled.



A 1:76 scale drawing of the proposed Panzerkampfwagen VI H (7.5 cm L/70) Ausf H2. The planned turret was designed by Rheinmetall-Borsig and was supposed to be mounted from the 101st Henschel Tiger chassis. This Tiger variant was cancelled in July 1942 when the decision was made to continue production of the Ausf H1 with the 8.8 cm KwK L/56. The deadly L/70 gun was mounted in the Panther. (Author)

Official designations

During the development of the Tiger I, this heavy Panzer was referred to by Wa Prüf 6 and the design firms under various names including PzKpfw 4501 (Typ Porsche und Henschel), PzKpfw VI Ausführung H1 (VK 45.01) and PzKpfw VI (VK 45.01/H) Ausführung H1 (Tiger).

From 1941 up to March 1942, the design and procurement project had been known as the 'Tigerprogram' but it wasn't until 2 March 1942 that the Panzer itself was identified by the name 'Tiger'.

The designation applied by the Inspekteur der Panzertruppen (In 6) was originally Panzerkampfwagen VI H (8.8 cm) (SdKfz 182) Ausführung H1. This name remained in use until 5 March 1943 when it was officially changed to Panzerkampfwagen Tiger (8.8 cm L/56) (SdKfz 181) Ausführung E.

The name formerly used was 'Tiger H1'. This suggestive name was finally changed to the now familiar 'Tiger I' on 5 March 1943 but both the designation PzKpfw VI and Tiger remained in common usage by the units and operational staffs until the end of the war.

Command variants

The command version of the Tiger I was initially designated as the PzKpfw VI H (8.8 cm) (SdKfz 182) (als PzBefWg) and after March 1943 as the PzBefWg Tiger (SdKfz 267 und 268) Ausf. E. Due to the large space needed to mount the additional radio sets, the ammunition stowage was reduced to 66 main gun rounds and 3300 machine gun rounds; the coaxially mounted machine gun, the vision block in the right turret side and the turret periscope were not mounted. The holes left behind by the removal of this equipment were all sealed with armour plugs.

The SdKfz 267 was outfitted with a FuG 8 (30 watt transmitter with medium wavelength receiver, operated in the frequency band 0.83 to 3 MHz) and a FuG 5 (10 watt transmitter with ultra short wavelength receiver, operated in the frequency band 27.2 to 33.4 MHz). The 267 can be identified by an Antennenfuss Nr 1 (antenna base, 104 mm base diameter) mounted on an insulator protected by a large armoured cylinder fitted on the right rear deck. A Sternantenne D (star antenna) for the FuG 8 was fitted to this base. A 2-metre high Stabantenne (rod antenna) for the FuG 5 was mounted on the turret roof on the right side of the commander's cupola.

The SdKfz 268 was outfitted with a FuG 7 (20 watt transmitter and ultra short wavelength receiver, operated in the frequency band 42.1 to 47.8 MHz) and a FuG 5. The 268 can be identified by the 1.4 metre Stabantenne for the FuG 7 mounted on the left side of the rear deck with a 2 metre Stabantenne for the FuG 5 mounted on the turret roof.

PRODUCTION HISTORY

An initial order for three Versuchsserie Fahrgestell, was followed by an order for 100 production series VK 45.01 (H). Following cancellation of the Ausf. H2 in July 1942, the order for the Henschel variant was increased to 300.

Following cancellation of the Porsche variant, Reichsdienstsleiter Saur decided that to prevent wastage, the turrets previously fabricated for the Tiger P1 would be utilised for the Tiger H1. Krupp sent the first four of these turrets to Wegmann by 27 November 1942 and out of the total of 90, Wegmann was ordered to assemble 50 and Krupp 40. Krupp completed assembly of the last of their turrets by June 1943. Except for the three turrets for the Versuchsserie and the 40 converted turrets completed by Krupp, Wegmann assembled and delivered completely operational turrets for mounting on completed Fahrgestell at Henschel.

Additional orders were placed for the Tiger I by extensions to the contracts. These additional Tiger Is were ordered only as an interim solution to meet the monthly production goals until the Tiger II could be produced in large numbers. These extensions increased the total order for the VK 45.01 (H) from 390 to 1,346 running in an unbroken series from Fgst Nr 250001 through 251346.

Like the VK 45.01 (P) the first Versuchsserie PzKpfw VI H 'V1' was also demonstrsted on

Hitler's birthday in 1942. The first production series VK 45.01 (H) (Fgst Nr 250001) was completed and sent to Kummersdorf on 17 May 1942 for testing. Delays in production were encountered due to problems with the brakes and steering gear, both of which needed minor modifications. The monthly production goal was continuously increased in an attempt to supply as many Tigers as possible to the front and as Table 1 shows, the production run continued through August 1944, tapering off at the end as Tiger II production took over.

PRODUCTION MODIFICATIONS

As with all series of German Panzers, modifications were frequently introduced during production runs. These modifications were prompted by a desire for improved automotive performance, increased firepower, additional protection, simplification of design for easier manufacturing, or in response to shortages.

The following modifications were selected as those that would have the greatest interest to modelers, historians, and armour enthusiasts. The numerous changes associated with replacing seals and gaskets, changing bolt sizes, and improving interior drive train components were of significant value in improving mechanical reliability.

In some cases, it took several months to have a new modification incorporated on all new production Tigers, largely due to 'first in, last out' tendencies. This resulted from stockpiles of older parts being covered or buried by deliveries of newer parts which were therefore used first.

The modifications are listed in the order in which the changes occurred. The highlighted month is the first in which the modification was present on Tiger Is leaving the factory. When exact dates or Fgst Nr are known for the start of a new modification, they have been listed. In the other cases, all that is certain is that the change first occurred on Tiger Is completed at the factory sometime during the specified month.

April 1942
The first Versuchsfahrzeug 'V1' was the only Tiger I completed with Vorpanzer. Using hydraulic lifters mounted at both ends, the Vorpanzer could be raised to provide extra protection in front of the superstructure or lowered to protect the hull front and the tracks.

May 1942
Tigers with Fgst Nr 250001 through 250020 had type Kgs 63/725/120 Geländeketten (tracks for cross-country travel) specifically designed so that tracks on the right side were a mirror image of the tracks on the left side. In the place of the discarded Vorpanzer, track mud guards fabricated from bent sheet metal were attached at the front on both sides.

August 1942
Nebelwurfgeräte (each consisting of three smoke candle dischargers) were mounted on each side of the turret. Toggle bolts on both sides of the hull machine gun mount were used to secure a cover to seal the opening during deep fording. These bolts were no longer installed after June 1943.

September 1942
Removable mud guards (consisting of four sections on each side) were bolted along the hull sides to cover the exposed ends of the wider cross-country track.

Fasteners were attached on the left superstructure side to hold the long 15 mm thick cable used for track replacement.

A box for the track adjusting and replacement tools was mounted on the left hull rear. This was discontinued after November 1943.

October 1942
Starting with Fgst Nr 250021, type Kgs 63/725/120 Geländeketten of the same design were mounted on both sides of the Tiger with the right side track mounted in reverse to the track on the left. This caused the Tiger I to pull slightly to the side.

November 1942
For Tigers sent to 'Tropical Climates' (Tunisia, Sicily, Italy and Heeres Gruppe Süd and Mitte in

Table 1: Tiger I Production (April 1942–August 1944)

			Delivered for issue			
Month & year	*Monthly goal*	*Accepted by inspector*	*Normal*	*Befehls*	*Rebuilt*	*FgstNr attained*
April 1942	0	0 + V1	1	0	0	
May 1942	0	0	1	0	0	
June 1942	5	1	0	0	0	250001
July 1942	15	0	0	0	0	
August 1942	10	8	9	0	0	250009
September 1942	15	3	2	0	0	250012
October 1942	16	10 + V2	8	0	0	250022
November 1942	18	17	14	0	0	250039
December 1942	30	37 + V3	35	0	0	250076
January 1943	30	35	30	0	1	250111
February 1943	30	32	30	3	0	250143
March 1943	40	41	35	4	0	250184
April 1943	45	46	42	5	0	250230
May 1943	50	50	43	4	0	250280
June 1943	60	60	49	6	0	250340
July 1943	65	65	53	4	0	250405
August 1943	70	60	63	11	0	250465
September 1943	75	85	48	7	0	250550
October 1943	80	50	82	3	0	250600
November 1943	84	56	34	2	0	250656
December 1943	88	67	80	0	0	250723
January 1944	93	93	78	9	0	250816
February 1944	95	95	96	6	1	250911
March 1944	95	86	84	4	1	250997
April 1944	95	104	88	6	3	251101
May 1944	95	100	79	6	5	251201
June 1944	75	75	100	4	5	251276
July 1944	58	64	63	2	8	251340
August 1944	9	6	13	3	11	251346

Russia), Feifel air filters were mounted on the upper corners of the hull rear. After August 1943 these were no longer installed at the factory .

Improved, hinged mud guards for the tracks were mounted at the front and rear to cover the track extending beyond the hull.

December 1942

Starting with Turm Nr 46, an escape hatch replaced the MP Klappe (machine pistol port) on the right rear turret wall. Originally the sides of this escape hatch were bevelled to conform to the curve of the turret side, but after June 1943, escape hatches were installed consisting of flat 80 mm thick discs Starting with Turm Nr 50, an adjustable commander's seat was installed, and with Turm Nr 56, a large stowage bin was mounted on the turret rear. This stowage bin was retrofitted onto all of the Tigers with sPzAbt.501 destined for Tunisia, but not onto those with sPzAbt.503 until the summer of 1943.

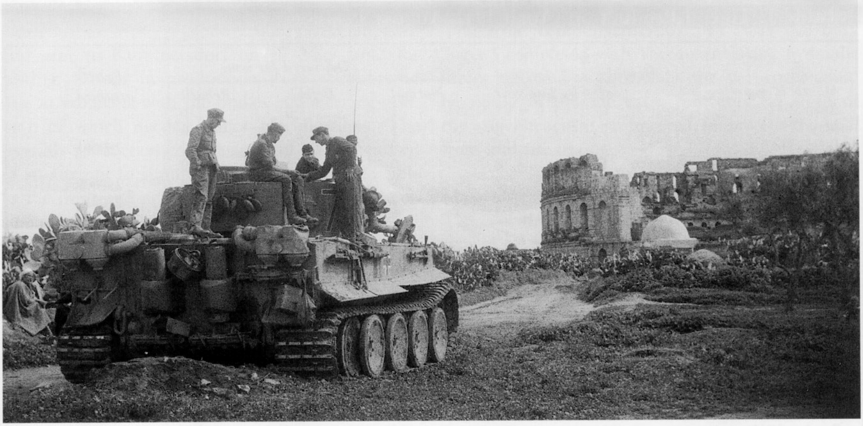
For additional protection, the armour thickness at the sides of the gun mantle and in the area of the gun sight aperture was increased.

Five S-Minenwerfer were mounted on the deck of the Tiger, one at each of the four corners, and one in the middle along the left side. On Panzerbefehlswagen only four were mounted, the one on the left side being omitted.

January 1943

Due both to glowing exhaust mufflers and exhaust flames that could be observed at long range at night, a heat guard and deflector were installed.

The Fahrerfernrohre (driver's periscopes) were no longer mounted and the associated apertures in the driver's front plate were welded closed.



After February 1943, the 501st was attached to the 10.Panzer Division and the first digit of many of the tactical numbers were painted over with a 7 or 8. This Tiger has tactical number 732. Built before December 1942, this Tiger has an M.P. Klappe (pistol port) on the right hand rear of the turret. Later Tigers had an escape hatch in this position. (Bundesarchiv)

March 1943

Starting with Turm Nr 179, a sheet metal shield was installed to protect the commander from back-blast and flames from the main gun breech. Starting with Turm Nr 184, a fixed periscope for the loader was installed in the turret roof.

Spare track links were mounted on brackets on the turret sides. The location on the turret side was selected because there was insufficient space to store the spare track on any other surface.

April 1943

The internal seals and gears of the final drives were improved and the design for the drive sprocket hub was altered.

May 1943

Starting with Fgst Nr 250251, the Maybach HL230P45 engine with two air filters was installed in place of the Maybach HL210P45. This modification included a change to the fan drives for the cooling system and a second hole in the alignment plate for the Schwungkraftanlasser (crank starter) to line up the shaft with the new engine.

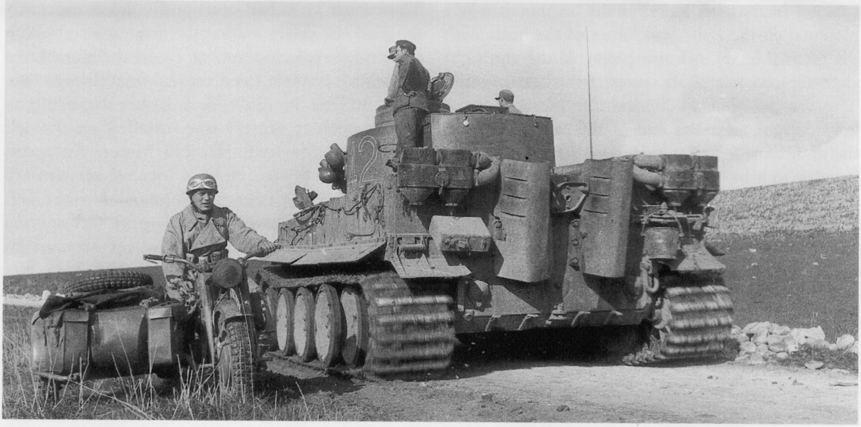
June 1943

Starting with Turm Nr 286, the Nebelwurfgeräte (smoke candle dischargers) were no longer mounted on the right and left turret sides. During a reported action in February 1943, small arms fire had set off the smoke candles which had temporarily incapacitated the crew members.

Starting with Fgst Nr 250301, the forward shock absorbers were fastened using mounting bolts with a large external head because the previous conical head design had vibrated loose.

July 1943

Starting with Turm Nr 391, the turret was extensively redesigned. A Prismenspiegelkuppel (commanders cupola with periscopes) with a swivel hatch was installed. To protect the periscope, armoured guards were welded over the protruding periscope heads and partial ring was welded to the top of the periscope guards to serve as a track for the improved Fliegerbeschussgeräte (anti-aircraft MG mount). The exhaust fan on the turret roof was moved forward to improve fume extraction. The M P Klappe on the left turret rear was



Rear view of Tiger, tactical number 142, of 1.Kompanie/schwere Heeres Panzer Abteilung 501 in Tunisia. The Feifel air filters can be seen along with the original mudguards. The second distinctive modification made by the 501st was the sheet metal heat shields around the exhaust stacks. The brackets, attached to the lower hull rear, are for carrying spare track links. (Bundesarchiv)

replaced by an M P Stopfen (pistol port plug). Internally, a fireproof cloth, hanging in front of the commander, replaced the sheet metal guard, a new design turret traverse lock that engaged with the teeth of the turret race was introduced; and an improved spring counter balance connected with a chain was installed for the 88 mm main gun.

The fasteners for the long 15 mm thick cable used for track replacement were redesigned and located in new positions along the left superstructure side.

A single headlight was mounted on the top left corner of the superstructure. Previously two lights had been mounted, one at each forward corner.

August 1943

In order to simplify production Henschel and Wegmann were ordered to immediately cease installation of deep fording components. These included many seals, covers and plugs as well as the four part telescoping air intake pipe. To ensure that the Tiger I could ford streams up to a depth of 1.5 m, gaskets were still to be installed where components penetrated the hull.

September 1943

Starting with Fgst Nr 250501, the Motortrennwand (firewall) was redesigned to allow easier access to the engine compartment and relocation of components.

A C-Clamp for use with towing cables was mounted on the hull rear to the left of the left exhaust guard.

Zimmerit (anti-magnetic coating) was applied at the factory to all upright surfaces that could be reached by a man standing on the ground. The surface was rippled to increase the distance to the steel surface without increasing the weight of the coating.

November 1943

Starting with Fgst Nr 250625, an improved fan driven by the main drive shaft, was installed at the fire wall which, with associated ducts was designed to remove fumes created by the gears and brakes.

The S-Minenwerfer on the deck, and the track tool box on the left hull rear, were dropped.

Starting with Fgst Nr 250635 (and continuing until Fgst Nr 250875 in February 1944), a Heckzurrung (rear travel lock) for the 88 mm gun was mounted on the right rear corner of the hull. With the internal travel lock this protected the gun sight alignment on long marches or over rough terrain. The rear position was technically better since it held the gun near the end of the barrel, but had the disadvantage that a crew member needed to be exposed to bring the gun into action.

December 1943

The single headlight was moved to the centre of the driver's front plate. To increase traction on ice and packed snow, six chevrons were added to the face of each track link.

January 1944

Starting with Fgst Nr 250762, the Lenzpumpe (suction pump) and associated discharge pipe were no longer fitted. The Lenzpumpe had originally been installed to remove water from the hull that may have seeped past the seals during deep fording operations.

From Fgst Nr 250772, the mount on the right hull rear was modified to hold a 20t Winde (jack), replacing the lighter 15t Winde that had been previously carried.

The MP Stopfen (pistol port) were no longer installed on the left turret rear being superfluous since close defence was provided by a Nahverteidigungswaffe (close defence weapon) mounted on the turret roof. This weapon could fire smoke cartridges, signal cartridges and grenades, but due to shortages, was not mounted on the Tiger I until March 1944.

The hull side extension at the front on both sides was cut out to allow free movement of the shackle for towing and lifting the Tigers.

February 1944

Gummigefederten Stahllaufrollen (steel roadwheels with internal rubber cushioning), adopted from the Tiger II, were mounted starting with Fgst Nr 250822. These were chosen because of their ability to bear the weight of heavy armoured vehicles. They were based on those for the Russian KW series of heavy tanks, but were significantly altered with improved bearings and weight reduction. The rubber tyres had occasionally failed, especially those on the inside bearing the greatest weight. With steel tyres replacing rubber tyres, the number of roadwheels per axle was decreased from three to two.

From Fgst Nr 250823, a Kuhlwasserheizgerät (motor coolant heater) was installed on the left side of the Maybach HL 230 Motor. An access port for a blow-torch was located on the tail plate below the armoured guard for the left muffler. When not in use, this port was covered by an oval shaped armoured cover secured by two bolts. The heater was used in the winter for preheating the coolant prior to attempting to start the engine.

A turret ring guard was welded to the deck beginning with Fgst Nr 250850. This prevented artillery shell fragments or anti-tank projectiles from jamming the turret.

Starting with Fgst Nr 250861, five electrical components were moved out of the engine compartment and mounted on a panel on the firewall in the fighting compartment.

March 1944

Hits by large calibre (greater than 150 mm) artillery shells on the turret had penetrated the 25 mm thick roof plate and the turret roof armour was therefore increased to 40 mm. The loader's hatch originally designed for the Tiger II turret was installed in the thicker turret roof.

April 1944

The monocular Turmzielfernrohr 9c (sighting telescope) replaced the previously used binocular Turmzielfernrohr 9b. Until gun mantles became available which had not been drilled for the binocular sight the additional aperture was welded shut with an armoured plug.

Beginning with Fgst Nr 251075, wooden decking was installed over the top of the upper fuel tanks to catch artillery shell splinters and bullet splash that came through the cooling air grates on the rear deck.

June 1944

To aid in maintenance, three sockets were welded to the turret roof to anchor the base of the 2t

Kran (jib boom). The boom could be used to lift the rear decking and motor from the vehicle on which it was mounted or lift the turret, transmission and steering gears from an adjacent vehicle. This modification was authorised to be retrofitted by Tiger units.

October 1944

The units were authorised to increase the internal stowage of 88 mm ammunition by 16 rounds. These were to be stored in two groups of four along each hull side. These additional rounds were secured in place by flat iron straps installed above the existing ammunition bins.

FIREPOWER

The effectiveness of a tank's main gun depends on the penetration ability of the armour piercing rounds, accuracy of the gun, characteristics of the gun sights, and the ability to quickly acquire the target.

Penetration statistics for armour plate expressed the thickness in mm that could be penetrated at an angle from the vertical of 30°. The penetration of AP rounds fired from the 8.8 cm KwK 36 L/56 shown in Table 2 was determined by tests conducted at firing ranges.

Of the total ammunition load of 92 rounds, the recommended ratio was 50 per cent Pzgr 39 (armour piercing, capped, ballistic capped with explosive filler and tracer) and 50 per cent Sprgr (high explosive shells). Occasionally, when available, a few rounds of Pzgr 40 (high velocity, sub-calibre, tungsten core) were carried for use against the heaviest armoured Russian tanks and tank destroyers. The Pzgr 40, without an explosive filler charge, was not as lethal after penetration as the Pzgr 39. A fourth type of round was the Gr 39 HL (HEAT) based on the hollow charge principle. The Gr 39 HL was less accurate and much less destructive than the Pzgr 39 but could be carried in place of Sprgr, and used either to combat armour or as an effective high explosive round against soft targets.

The 8.8 cm KwK 36 L/56 was a very accurate gun capable of first round hits at ranges exceeding 1000 m The estimated accuracy is given as the probability of hitting a target 2 m high and 2.5 m wide, representing the front of an opposing tank. These tables are based on the assumption that the actual range to the target has been determined.

Table 2: Armour Penetration

	Pzgr 39	*Pzgr 40*	*Gr 39 HL*
Shell Weight	10.2 kg	7.3 kg	7.65 kg
Initial Velocity	773 m/s	930 m/s	600 m/s
Range			
100 m	120 mm	171 mm	90 mm
500 m	110 mm	156 mm	90 mm
1000 m	99 mm	138 mm	90 mm
1500 m	91 mm	123 mm	90 mm
2000 m	83 mm	110 mm	90 mm

Table 3: Accuracy

Ammunition:	*Pzgr 39*		*Pzgr 40*		*Gr 39 HL*	
Range	*Practice %*	*Combat %*	*Practice %*	*Combat %*	*Practice %*	*Combat%*
100 m	100	100	100	100	100	100
500 m	100	100	100	100	100	98
1,000 m	100	93	99	80	94	62
1,500 m	98	74	89	52	72	34
2,000 m	87	50	71	31	52	20
2,500 m	71	31	55	19		
3,000 m	53	19				

Firing on the practice range was obviously more accurate than normal in combat conditions. This is reflected in the accuracy tables from an original manual on the 8.8 cm KwK 36 L/56 as shown in Table 3.

The sight for the Tiger I produced up to April 1944 was the articulated, binocular Turmzielfernrohr 9b mounted parallel and on the same axis as the main gun. Each of the two sight tubes had a different sight reticle. The pattern in the left reticle consisted of seven triangles, separated by four mils. Placing the target on the point of a triangle allowed the gunner to aim without obstructing the view of the target. The distances between triangles were used to lead moving targets. The triangle height and separation distances in mils were also used as an aid in estimating the range to a target. The pattern in the right reticle also contained the seven triangles plus four adjustable range scales that allowed the gunner to register the exact range to the target. The range scale for the Pzgr 39 was graduated at 100 m intervals out to a range of 3000 metres and the second range scale for the Sprgr was graduated out to a range of 5000 m.

With the replacement gun sight Turmzielfernrohr 9c introduced in April 1944, the gunner could select two magnifications, 2.5X and 5X. The lower magnification provided a wider field of view for target identification while the higher assisted in precise aiming at long ranges. Two adjustable range scales allowed the gunner to register the exact range to the target. The range scale was graduated in the same way as the 96 sight.

To traverse quickly onto a target, the Tiger I was outfitted with a hydraulic motor for the turret drive. The speed of traverse was dependent on the engine speed the maximum being 360° in 60 seconds. The hydraulic traverse enabled coarse laying in order for the gunner to quickly acquire the selected target within the sight picture. The gunner's hand traverse and elevation wheels were used to make fine adjustment (laying the target onto the peak of the proper triangle in the sight reticle). If the power traverse failed, the turret could be traversed by hand. The gunner could be assisted by the commander using the auxiliary hand traverse.

MOBILITY

The capability of the Tiger I to negotiate obstacles and cross terrain was as good as or better than most German and Allied tanks as shown by the performance characteristics listed in Table 4:

The Tiger I initially experienced numerous automotive problems which required a continuous series of minor modifications to correct. These problems can be traced to three main causes: improperly sized brakes, leaking seals and gaskets, and an overtaxed drive train originally designed for a 40 ton vehicle. Following modification of key automotive components, with experienced drivers taking required maintenance halts, the Tiger I could be maintained in a satisfactory operational condition.

The first production series Tiger Fgst Nr 250001 with Motor Nr 46052 was only run-in for 25 km by Henschel before being sent to Kummersdorf for testing. During a test drive on 28 May 1942, with only 52 km on the odometer, a blockage occurred in the steering gear. This Tiger quickly went through the original and two replacement engines (Motor Nr 46051 from July 1st to 3rd, Motor Nr 46065 from July 6th to 8th) and was fitted with a fourth motor, Nr 46066, after July 13th. By 3 August 1942, this Tiger had covered a total of 1046 km; by 31 March 1943 a total of 5623 km; and by 31 July 1943 a total of 7736 km. These figures clearly demonstrate that once the Tiger had overcome its teething

Table 4: Performance

Maximum speed	45.4 km/h
Maximum sustained road speed	20 km/h
Average cross-country speed	15 km/h
Radius of action, road	195 km
Radius of action, cross-country	110 km
Smallest turning radius	3.44 m
Maximum turning radius	165 m
Trench crossing	2.5 m
Fording	1.6 m
Step climbing	0.79 m
Gradient climbing	35 degrees
Ground clearance	0.47 m
Ground pressure	0.735 kg/cm^2
Power to weight ratio	12.3 metric hp/ton with the Maybach HL230P45

Penetration Table 1: Cromwell, Churchill

		Tiger I vs Cromwell (8.8 cm Kw.K.)	*Cromwell vs Tiger I (75 mm M3)*	*Tiger I vs Churchill (8.8 cm Kw.K.)*	*Churchill vs Tiger I (75 mm M3)*
Front:	**Turret**	2000 m	0 m	1700 m	0 m
	Mantle	2700 m	0 m	1400 m	0 m
	DFP*	3500 m	0 m	1300 m	0 m
	Nose	2500 m	0 m	1100 m	0 m
Side:	**Turret**	3400 m	100 m	1700 m	100 m
	Super	3500 m +	100 m	3000 m	100 m
	Hull	3500 m	900 m	3000 m	900 m
Rear:	**Turret**	3500 m +	100 m	2600 m	100 m
	Hull	3500 m +	0 m	3500 m +	0 m

**DFP = Driver's Front Plate*

Penetration Table 2: Sherman A2, Sherman A4

		Tiger I vs Sherman A2 (8.8 cm Kw.K.)	*Sherman A2 vs Tiger I (75 mm M3)*	*Tiger I vs Sherman A4 (8.8 cm Kw.K.)*	*Sherman A4 vs Tiger I (76 mm M1A1)*
Front:	**Turret**	1800 m	0 m	1800 m	700 m
	Mantle	200 m	0 m	200 m	100 m
	DFP	0 m	0 m	0 m	600 m
	Nose	2100 m	0 m	2100 m	400 m
Side:	**Turret**	3500 m +	100 m	3500 m +	1800 m
	Super	3500 m +	100 m	3500 m +	1800 m
	Hull	3500 m	900 m	3500 m +	3200 m
Rear:	**Turret**	3500 m +	100 m	3500 m +	1800 m
	Hull	3500 m +	0 m	3500 m +	1700 m

troubles, it could withstand a lot of purposefully administered abuse during test programmes.

BATTLEFIELD SURVIVABILITY

Along with the extremely effective main gun, a major asset of the Tiger I was the thick frontal armour. Even the side and rear armour protection was sufficient to eliminate any serious threat from the American 75 mm or the Russian 76 mm tank guns at normal combat ranges. The tables extracted from a Wa Prüf 1 report dated 5 October 1944 catalogue relative ability of the major opponents to penetrate the Tiger I and vice versa as shown in the Penetration Range Tables. The penetration ranges were determined based on the assumption that the tanks stood at a side angle of 30 degrees to the incoming round.

The data shows that the American Sherman with a 76 mm M1 gun and the Russian T-34/85 both stood a chance at close range against the Tiger I. However, not a single Sherman that landed on the beaches at Normandy on 6 June 1944 had a 76 mm gun. On 6 September 1944, only 250 out of 1,913 Shermans with the 12th Army Group had 76 mm guns. Based on opposing ranges, without considering other factors, the Tiger I had only been outclassed by the Russian Josef Stalin heavy tank with the 122 mm gun.

The original report did not show the effectiveness of British tank guns against the Tiger I. The data presented in Penetration Range Table 4 was found in an STT secret document dated April 1944:

It is obvious that the 17-pdr. firing normal APCBC rounds could defeat the frontal armour of the Tiger I at most combat ranges for tank vs tank actions in Europe. Although by 23 June 1944, only 109 Shermans with 17-pdrs. had landed in France along with six replacements by the end

Penetration Table 3: T-34/85, JS-122

		Tiger I vs T-34/85 (8.8 cm Kw.K.)	*T-34/85 vs Tiger I (85 mm S53)*	*Tiger I vs JS-122 (8.8 cm Kw.K.)*	*JS-122 vs Tiger I (122 mm A19)*
Front:	Turret	1400 m	500 m	100 m	1500 m
	Mantle	400 m	0 m	100 m	500 m
	DFP	100 m	300 m	100 m	1300 m
	Nose	100 m	200 m	300 m	1000 m
Side:	Turret	2200 m	1600 m	1000 m	2900 m
	Super	2100 m	1600 m	1000 m	2900 m
	Hull	3500 m +	2900 m	1500 m	3500 m +
Rear:	Turret	3200 m	1600 m	100 m	2900 m
	Hull	2100 m	1500 m	300 m	2700 m

of the war, on 5 May 1945, the British 21st Army Group possessed 1,235 Shermans with 17-pdrs. compared with 1,915 with 75 mm M3 guns.

OPERATIONAL HISTORY

Four Tigers with the 1.Kompanie/schwere Heeres Panzer Abteilung 502 made their combat debut near Leningrad on 29 August 1942. The reputation of the Tiger was immediately distorted by false reports concerning the loss of Tigers involved in this first action. An excellent history of the combat activity of the Tiger containing hundreds of action accounts has already been written by Egon Kleine and Volkmar Kühn. The short operational history in this section is intended as a companion reference. Each Tiger unit is listed with a concise history as well as details on exactly when Tigers were delivered including replacements. Although many veterans can provide stories of having to continually fend off Tigers, the following account reveals the actual numbers sent to each front. The limited number available for action left an overwhelming impression on their opponents.

The original goal in creating Tiger units was not to create complete battalions with 45 Tigers. As revealed during the famous meeting on 26 May 1941, the intention was to create units with 20 heavy Panzers to be used as spearheads for the Panzer Divisions. This organisational concept was expanded by including light tanks within the unit. These light tanks were needed to perform numerous duties for which Tigers were not suited, including scouting, reconnaissance, and messenger running in addition to the escort role. Thus the first five independent battalions (501–505) and the first four companies organic to Panzer Regiments (Grossdeutschland and SS-1, 2 and 3) each had company organisations consisting of nine Tigers accompanied by ten PzKpfw III in accordance with K St N 1176d dated 15 August 1942 revised 15 December 1942.

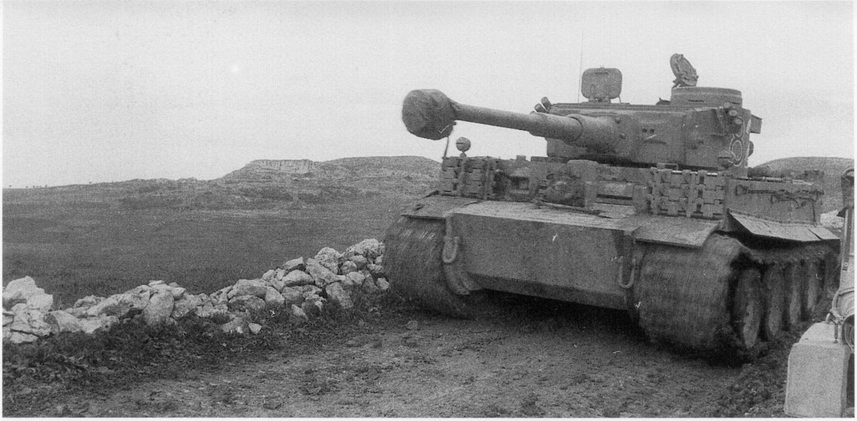
Only after the initial after action reports were available was the decision made to outfit each company with 14 Tigers as reflected in K St N 1176e dated 3 March 1943. Some unit commanders had argued that light tanks should still be retained in the organisation to perform duties unsuitable for Tigers. By the end of June 1943, all of the units (with the exception of the 2./504) had been upgraded to the new organisation with 14 Tigers per company.

Schwere Heeres Panzer Abteilung 501

Following the Allied landings in northwest Africa, Germany quickly sent troops to Tunisia to block access to Libya and deprive the Allies of bases

Penetration Table 4: British Guns

		6-pdr. APCBC	*17-pdr. APCBC*
Front:	Turret	0 yds	1900 yds
	DFP	0 yds	1900 yds
	Nose	0 yds	1700 yds
Side:	Turret	700 yds	2500 yds +
	Super	700 yds	2500 yds +
	Hull	1000 yds	2500 yds +
Rear:	Turret	700 yds	2500 yds +
	Hull	600 yds	2500 yds +



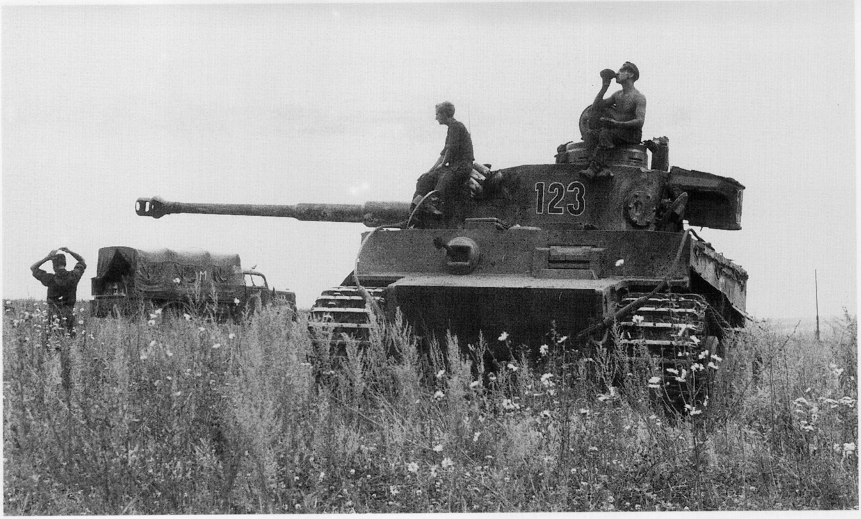
A modification unique to the 2.Kompanie of the 501st was the attachment of spare track links to the superstructure front. The Bosch lights are in the normal position on the top of the superstructure. The mantle has the increased armour around the sight aperture but the Fahrerfernrohre (driver periscope) is still fitted. The 'crouched tiger' symbol of the unit is painted above the driver's visor. (Bundesarchiv)

within easy striking distance of Italy. One of these units was the schwere Heeres Panzer Abteilung 501 which was one of the two Tiger units that had been promised to Rommel and prepared for tropical deployment. Originally, the 501st was to have been outfitted with the Porsche-Tigers but due to the delays and subsequent cancellation of Porsche-Tiger production, the 501st was issued normal Henschel-Tigers in the Fgst Nr sequence from 250011 to 250033. The 501st had been outfitted with 20 Tigers (two in September, eight in October, and ten in November) and 25 PzKpfw III (7.5 cm) Ausf. N. All 20 Tigers safely made the crossing to Tunisia, the first three Tigers of 1.Kompanie being unloaded at Bizerta on 23 November 1942. The last two Tigers did not arrive until 24 January 1943, the second company having been diverted due to the occupation of southern France and therefore delayed in reaching Tunisia. The 501st surrendered in Tunisia on 12 May 1943 but was reformed from the surviving remnants in September and received 45 Tigers from the ordnance depot in October and November. Sent to the Eastern Front in November, the 501st did not receive any new production replacements until six Tigers were sent in June 1944. Decimated by the Russian summer offensive, the 501st was pulled out in early July 1944, reformed and issued with the Tiger II.

Schwere Heeres Panzer Abteilung 502

On 23 July 1942, Hitler had ordered that the first company of Tigers be formed quickly and sent to the front at Leningrad. The first unit to receive Henschel-Tigers was the 1.Kompanie of schwere Heeres Panzer Abteilung 502, four arriving on August 19 and 20. These Tigers, accompanied by four PzKpfw III (7.5 cm) Ausf. N, arrived at the front and went into combat on 29 August 1942. Two of the four Tigers were still operational at the end of the day and the other two were recovered and repaired. On 21 September 1942, the Tigers and PzKpfw IIIs were sent into action again, with the loss of one Tiger and two PzKpfw IIIs. This action resulted in the first Tiger that was permanently lost. Having become hopelessly mired, the Tiger was subsequently filled with explosives and destroyed on 25 November 1942.

The rest of the 1.Kompanie of the 502nd arrived at the front on 25 September 1942 with five



Schwere Heeres Panzer Abteilung 503 was issued 20 Tigers in November and December 1942 and arrived in Russia in early January 1943. Tiger, tactical number 123, had the two holes for the Fahrerfernrohre welded closed. No heat shields were fitted around the exhaust stacks. The turret predates Turret number 46, since it still has a M.P. Klappe on the right rear. Many of the original Tigers issued to the 503rd were outfitted stowage bins designed for the Pz.Kpfw. III. The Opel Blitz truck in the background is delivering ammunition. (Bundesarchiv)

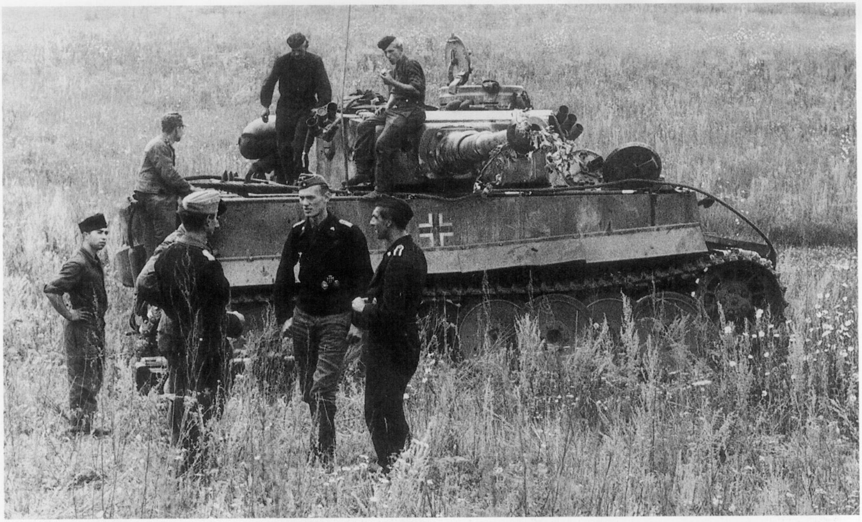
Tigers, nine PzKpfw III (5 cm KwK L/60) and five PzKpfw III (7.5 cm) Ausf. N. The 502nd's first nine Tigers were Fgst Nr 250002 to 250010, and seven new Tigers arrived at the front in February 1943 to replace losses. Ordered to upgrade to the current organisation, the 1.Kompanie received seven Tigers in June 1943 to fill their complement of 14 Tigers.

Having been outfitted in December with nine Tigers and ten PzKpfw III Ausf. Ns the 2.Kompanie was attached to the 503rd and left for the front on 29 December 1942. It arrived at the front on 5/6 January 1943 and first saw action on 7 January 1943. On 10 February 1943, the 2.Kompanie of the 502nd was renamed 3.Kompanie/schwere Panzer Abteilung 503 and became a permanent part of the 503rd.

On 1 April 1943, a new 2.Kompanie and a 3.Kompanie were formed for the 502nd and to fill these two companies and the Stab (headquarters), 31 Tigers were shipped from the ordnance depot between 19 and 26 May 1943. The 1.Kompanie was joined at the front by the Stab, 1. and 2.Kompanien in early July 1943, bringing the unit strength up to 45 Tigers. They received 32 replacements in January and a further 20 in February 1944bringing the strength of the 502nd to a total of 71 Tigers on 29 February 1944, although only 24 were operational. The 502nd, renamed as the schwere Panzer Abteilung 511 on 5 January 1945, continued the struggle on the Eastern Front until the end of the war.

Schwere Heeres Panzer Abteilung 503

The second unit promised to Rommel, the 503rd, was to receive Porsche-Tigers but the cancellation of production resulted in the 503rd being outfitted with 20 Henschel-Tigers in November and December 1942 and 25 PzKpfw III Ausf. N. Due



A second photograph of Tiger, tactical number 123, belonging to the 1.Kompanie of 503rd taken at the period of the Kursk Offensive during the Summer of 1943. The book TIGER by Egon Kleine/Volkmar Kühn identified the officers and crew from the left foreground; Leutnant (2nd Lieutenant) Linsser, Hauptfeldwebel (Regimental Sergeant Major) Hasse, Hauptmann (Captain) Burmester, Unteroffizier (Lance sergeant) Lewandowski while on the Tiger from the left are the Fahrer (driver) Hans Thomè, Obergefreiter (Corporal) Heinz Quast without a shirt attends to maintenance while the Funker (Radio operator) Rolf Sichel is sitting on the gun mantle. (Bundesarchiv)

to the successful Russian winter offensive, the 503rd was sent east with the first elements arriving on 1 January 1943.

The 503rd was upgraded and received 24 new Tigers in April 1943 completing their complement of 45 Tigers. Having lost only four Tigers during the Kursk offensive and a further four during the withdrawal, the unit received 12 replacements in August 1943. The 503rd was rested and outfitted with 45 new Tigers and re-entered combat on 21 January 1944. It received a further 35 new Tigers in February and March 1944 before being withdrawn from combat in late April 1944.

Transferred back to the West, the 503rd received a further 33 Tiger Is and 12 Tiger IIs and was sent to Normandy. The unit first saw action on 11 July 1944 and subsequently lost most of its Tiger Is in the withdrawal during August 1944. On 9 September 1944, the 503rd was ordered to rest and refit with the Tiger II.

Schwere Heeres Panzer Abteilung 504

The 504th was the second Tiger unit to be sent to Tunisia. It was issued 25 PzKpfw III plus two Befehls-Tigers in January and 18 Tigers in February 1943. The first three Tigers arrived in Tunisia on 12 March 1943, followed by five on 22/23 March, two on 1 April and the last of the 11 on 16 April 1943. Only the Stab and 1.Kompanie with 11 Tigers and 19 PzKpfw IIIs were transported to Tunisia. The 2.Kompanie being held on Sicily with the remaining nine Tigers and six PzKpfw IIIs. The elements in Tunisia surrendered on 12 May 1943.

On 13 April 1943, the OKH ordered that six Tigers were to be stationed on Sicily and that until transferred to Tunisia, the 2.Kompanie/schwere

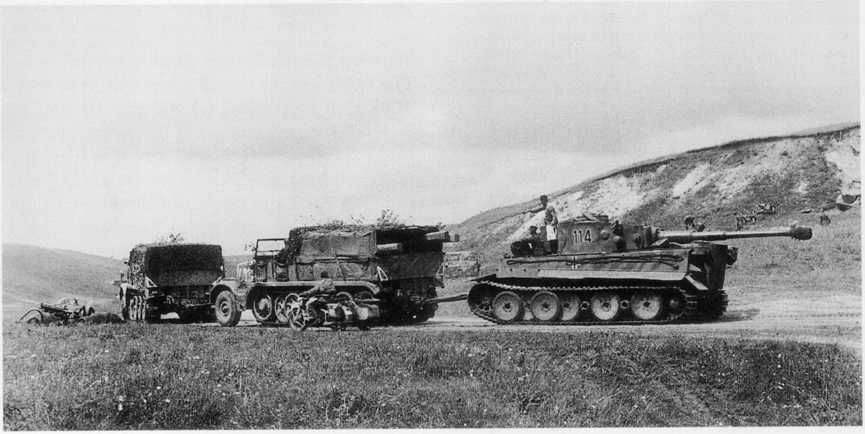
Panzer Abteilung 504 was to be attached to Pz.Abt.215 with a reinforced platoon of six Tigers being immediately shipped to Sicily. Altogether 17 Tigers gathered on Sicily: the original nine from the 2.Kompanie of the 504th, two Tigers that had been issued as replacements for the 501st in February, and the six Tigers issued in April 1943 for the 215th.

Attached to Panzer Division Hermann Göring, the 17 Tigers under the 2.Kompanie of the 504th attacked the American landing zone on 11 July 1943, but were neutralised by naval gunfire. Within the first three days ten of the 17 were destroyed to prevent capture and a further six Tigers were destroyed later for the same reason. The last Tiger was shipped back across the straits of Messina to Italy.

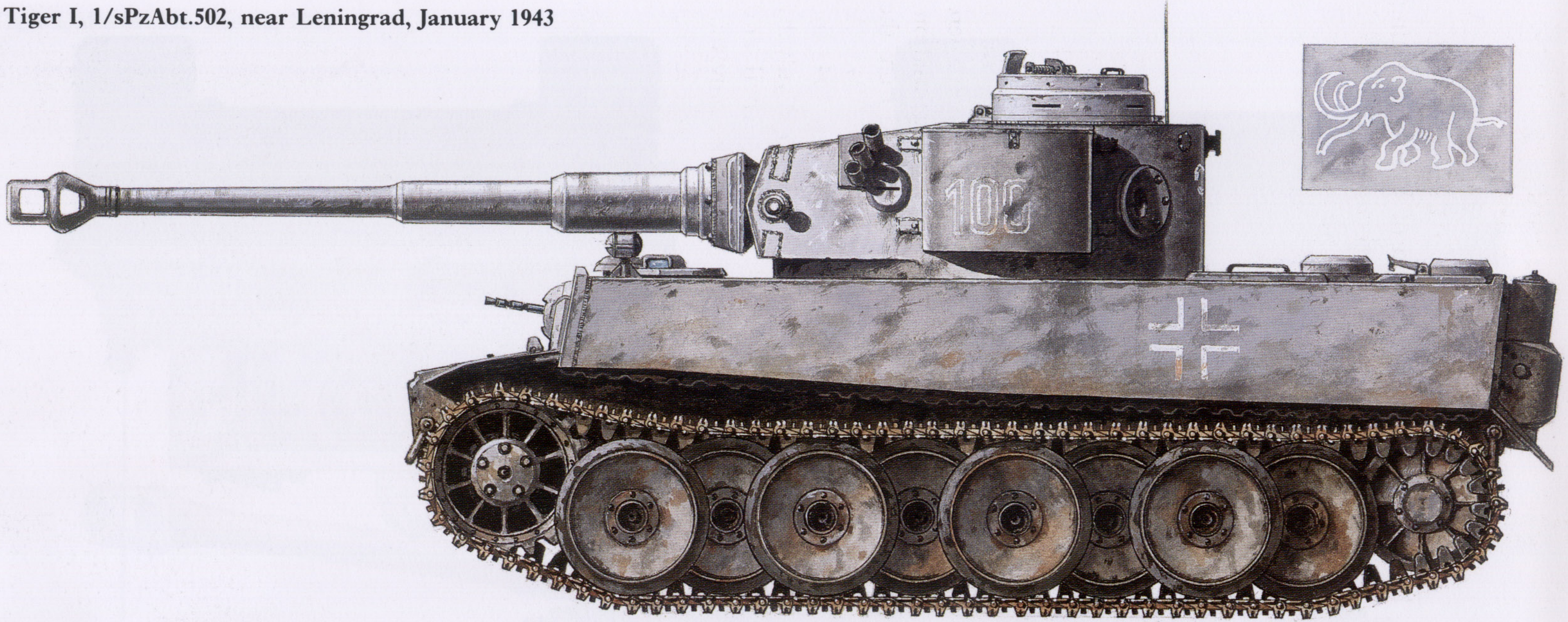
The 504th was rebuilt and received 45 Tigers in March 1944, remaining in training for an unprecedented three months, before it was decided to send the unit to the Eastern Front. However, the Allied successes in Italy in May 1944, caused Guderian to reverse this decision and on 3 June 1944 he requested that the 504th be transferred to Italy, just three days before the Allied landing at Normandy. Heavily engaged in stemming the Allied drive in Italy, the 504th lost half its Tigers before the end of June. Remaining in Italy until the end of the war, the 504th received only 12 new replacement Tigers in July 1944 and the 15 left behind by the 508th in February 1945.

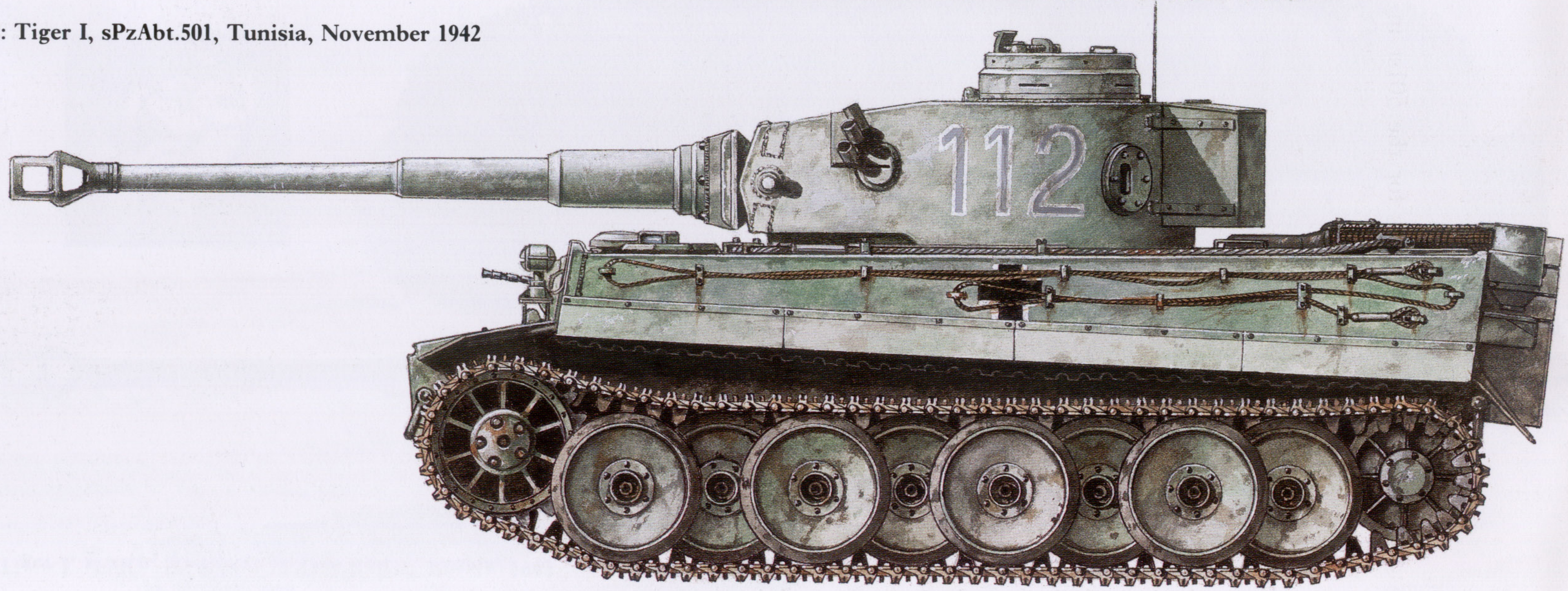
Schwere Heeres Panzer Abteilung 505

The 505th was the last independent battalion created with the old organisation of 20 Tigers and 25 PzKpfw III. Formed in February 1943, the 505th received several Tigers and the rest in March along with 25 PzKpfw IIIs. The unit was loaded on rail cars on 29/30 April 1943 and sent to Heeres Gruppe Mitte on the Eastern Front where it was ordered to upgrade to the new organisation, and received 11 Tigers that were shipped from the ordnance depot between 8 and 10 June 1943. At the start of the Kursk offensive on 5 July 1943 the unit had 31 Tigers and was joined on 9 July by 3.Kompanie which had formed in April and received Tigers in June. The 505th lost only four Tigers during the Kursk offensive but lost a further six by the end of July 1943.



In April 1943 the 503rd received a further 24 Tigers. This photograph shows Tiger, tactical number 114, of the 1.Kompanie which has the turret escape hatch and turret bin. It is being recovered by two 18 ton Zugmaschinen (Sd.Kfz. 9). The two rear outer wheels have been removed from the Tiger.(Bundesarchiv)

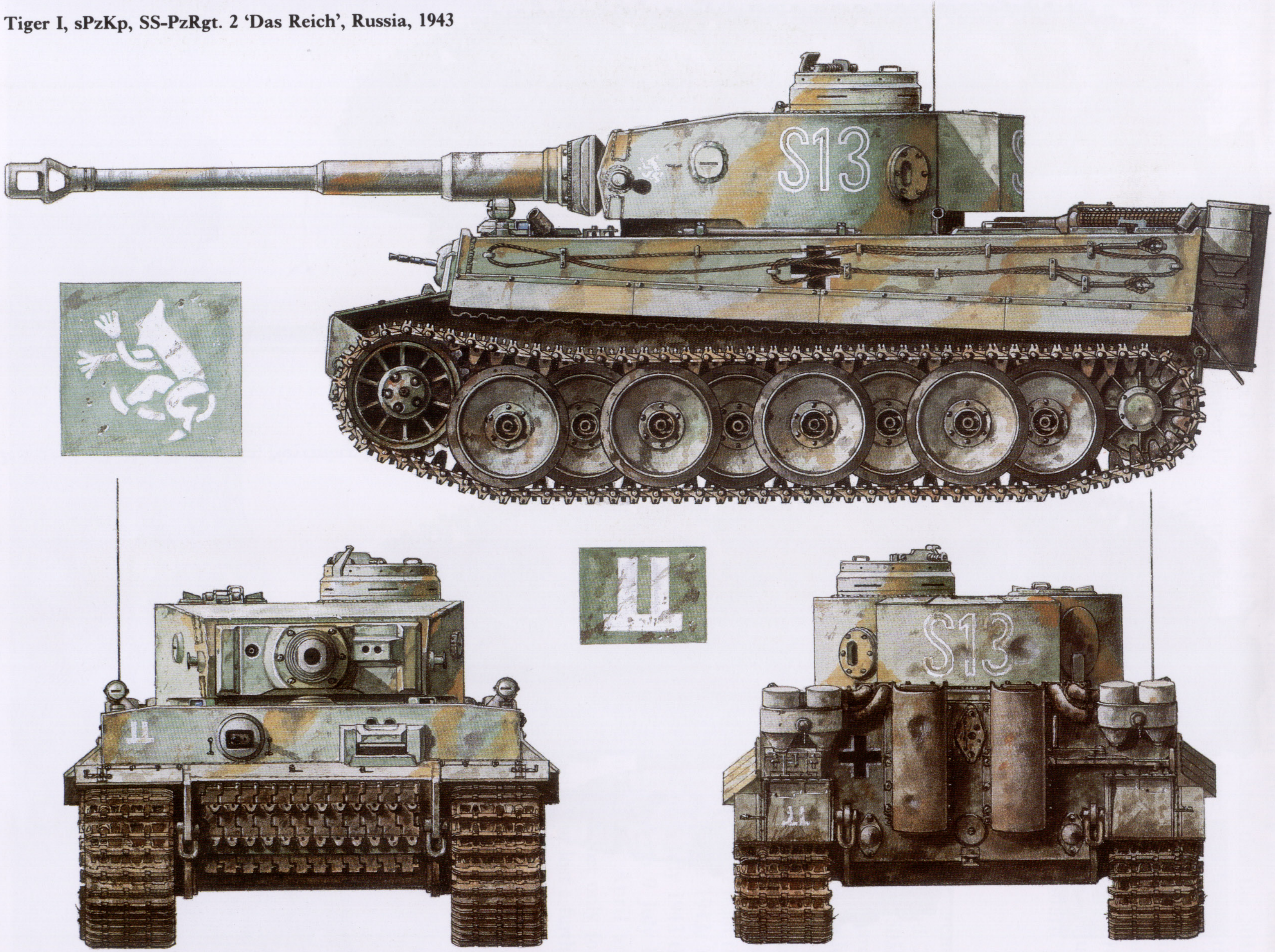

1: Tiger I, 1/sPzAbt.502, near Leningrad, January 1943


2: Tiger I, sPzAbt.501, Tunisia, November 1942

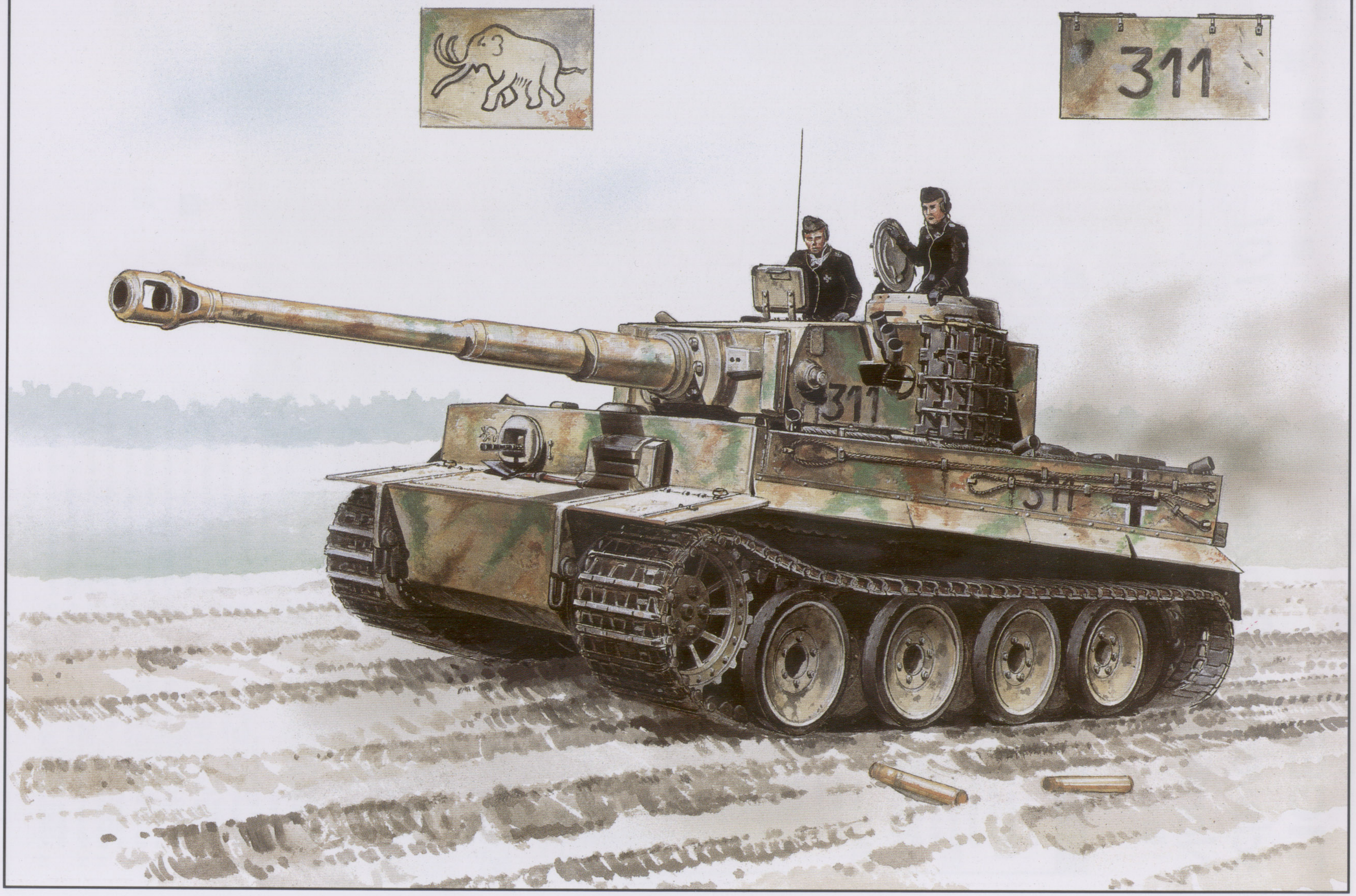
A

B

Tiger I, sPzKp, SS-PzRgt. 2 'Das Reich', Russia, 1943



Tiger I, sPzAbt.502, Russia, 1943



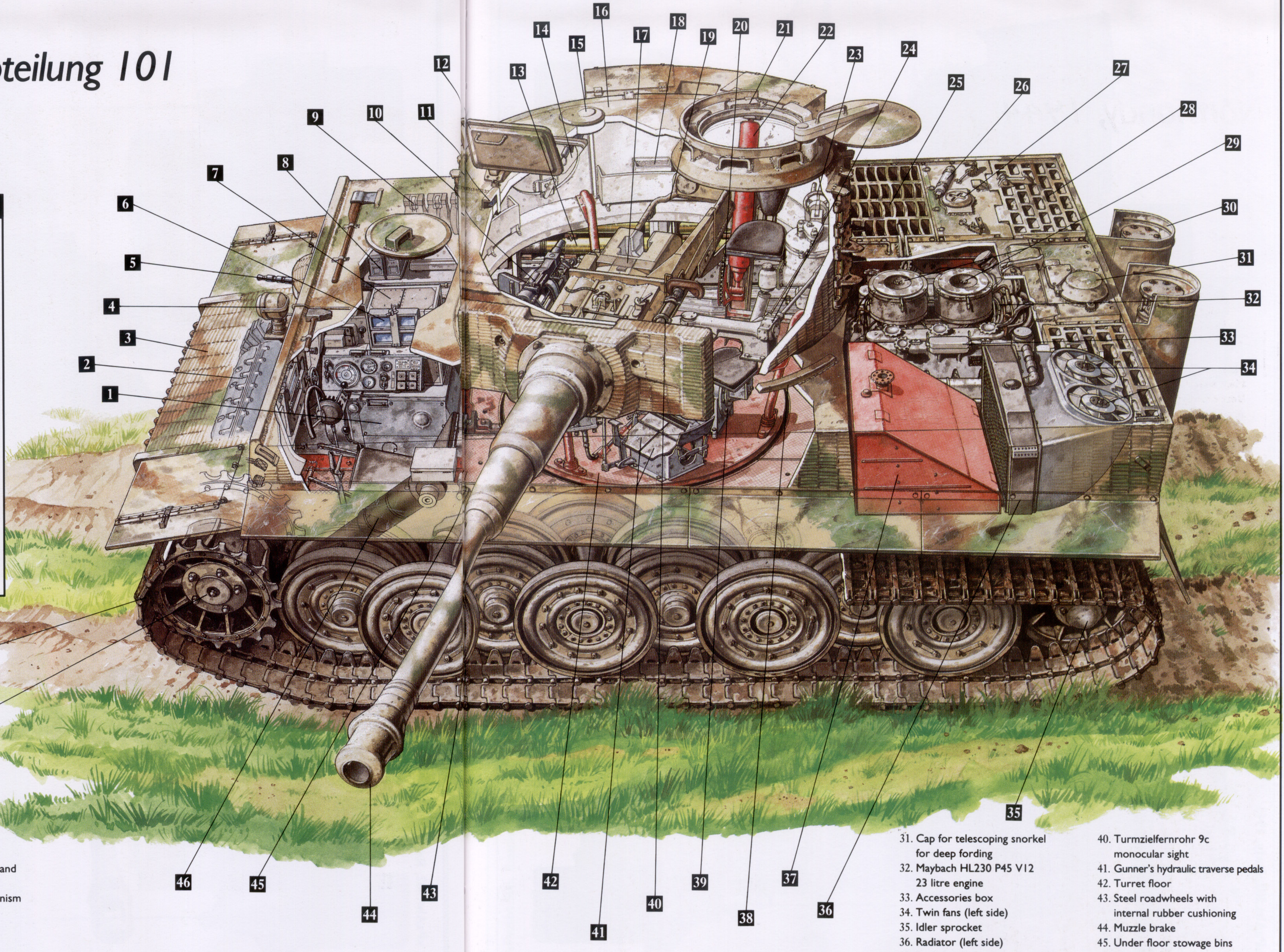
C

TIGER I

schwere SS-Panzer-Abteilung 101
Normandy, 1944

SPECIFICATIONS

Crew: 5
Combat weight: 57,800 kg
Power to weight ratio:12.3 metric Hp/ton
Ground pressure: 0.735 kg/cm²
Overall length: 8.45 m
Width: 3.70 m
Engine: Maybach HL230 P45 V12 petrol
Transmission: Maybach Olvar Typ OG 40 12 16,
8 forward 4 reverse
Max. speed (road): 45.5 kph
Max. speed (cross-country): 15–20 kph
Best cruising speed: 38 kph
Max. range: 195 km at cruising speed
Fording depth: 1.60 m
Armament: 8.8 cm KwK 36 L/56
Sight: Turmzielfernrohr 9c
(Monocular, magnification 2.5x and 5x)
Main gun ammunition:
8.8cm PzGr 39 (Armour-piercing)
8.8cm PzGr 40 (Armour-piercing, Tungsten core)
8.8cm Gr 39 H1 (Hollow charge)
Muzzle velocity: 773 m/sec (PzGr 39)
Stowed main gun rounds: 92
Gun depression/elevation: -9 degrees/+10 degrees

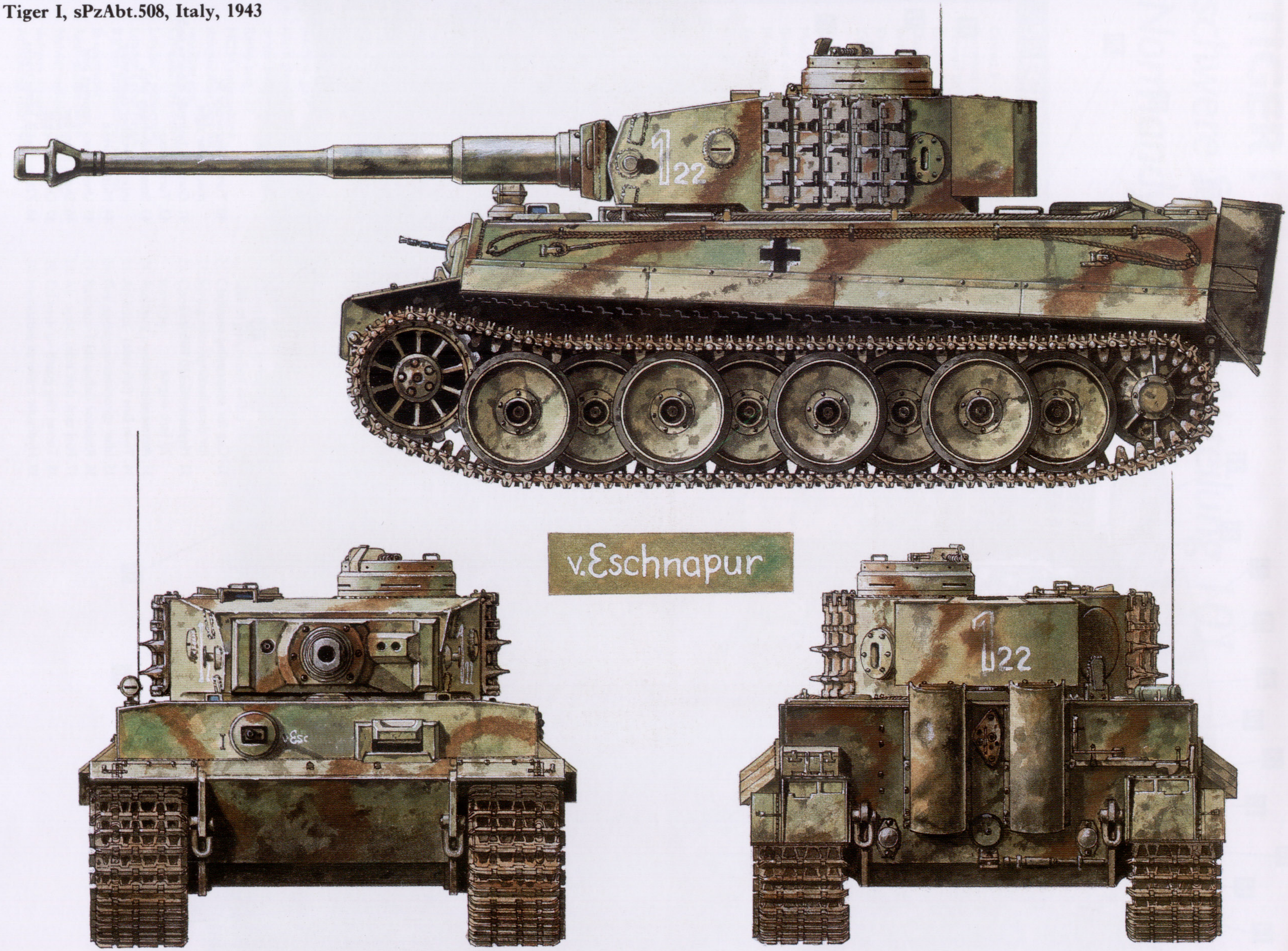


KEY TO DIAGRAM

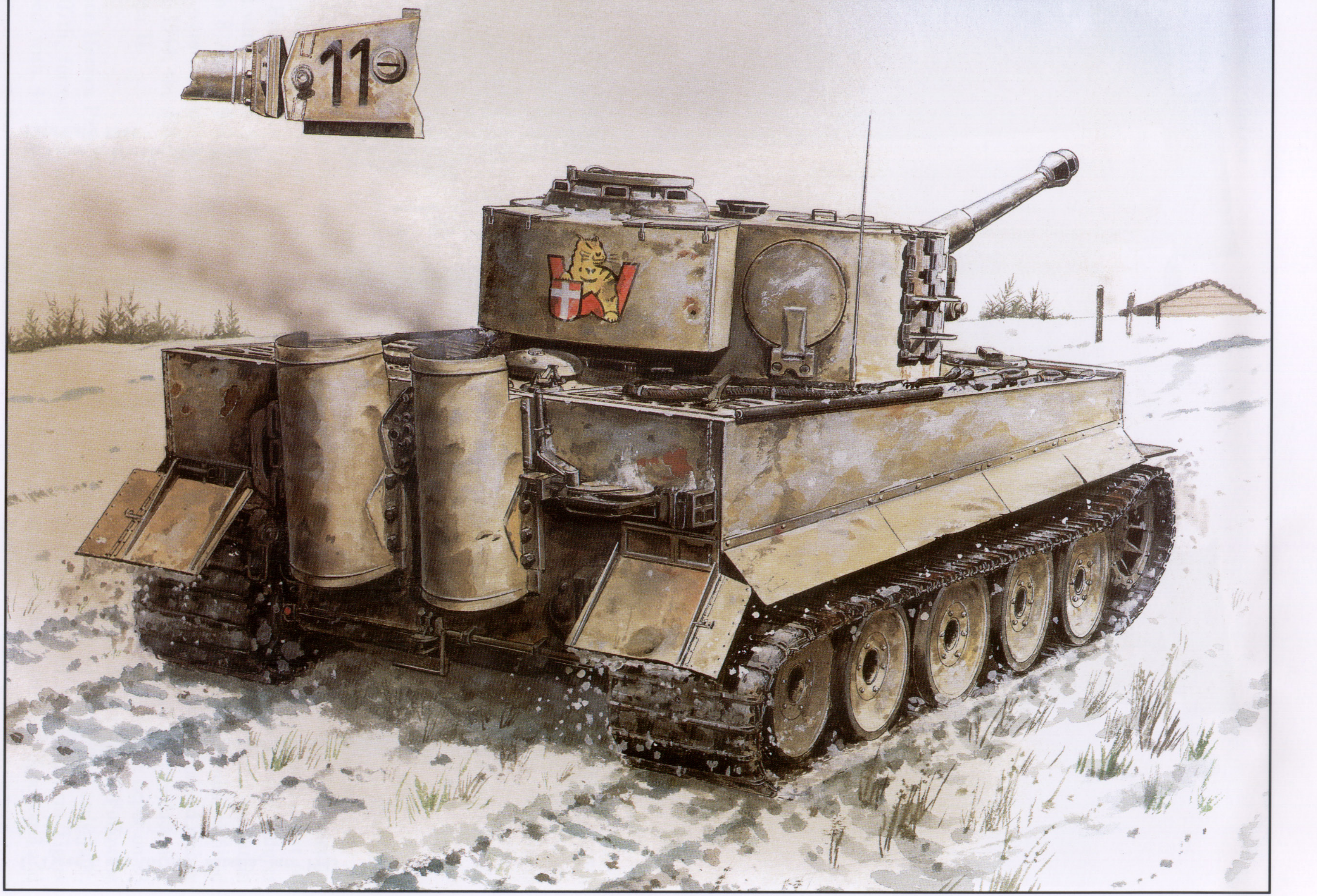
1. Maybach Olvar 40 12 16 gearbox
2. Maybach L600C steering gear
3. Zimmerit anti-magnetic paste
4. Bosch headlight
5. 7.92 mm MG34 hull machine gun
6. spare glass blocks for driver's visor
7. Radio sets
8. MG34 ammunition
9. Ammuniton bags for machine gun
10. Co-axial 7.92 mm MG34
11. Loader's periscope
12. Loader's roof hatch
13. 8.8 cm ammunition stowed in sponsons
14. Rear escape hatch
15. Nahverteidungswaffe (close defense weapon)
16. Armoured roof (40 mm)
17. 8.8 cm Kwk 36 L/56 gun
18. Small stowage bin
19. Recoil guard
20. Chain from spring to rear of gun recoil shield
21. Commander's cupola
22. Spring counterbalance
23. Commander's auxiliary hand traverse
24. Auxiliary traverse mechanism
25. Air inlet
26. Fire extinguisher
27. Radiator filler cap
28. Air outlet
29. Oil bath air filters
30. Heat shield
31. Cap for telescoping snorkel for deep fording
32. Maybach HL230 P45 V12 23 litre engine
33. Accessories box
34. Twin fans (left side)
35. Idler sprocket
36. Radiator (left side)
37. Fuel tank (left side)
38. Turret ring guard
39. Hydraulic traverse motor
40. Turmzielfernrohr 9c monocular sight
41. Gunner's hydraulic traverse pedals
42. Turret floor
43. Steel roadwheels with internal rubber cushioning
44. Muzzle brake
45. Under floor stowage bins
46. Shock absorber
47. Drive sprocket
48. 725 mm wide battle tracks

E

Tiger I, sPzAbt.508, Italy, 1943


1 22
v.Eschnapur
I
v.Esc
1 22

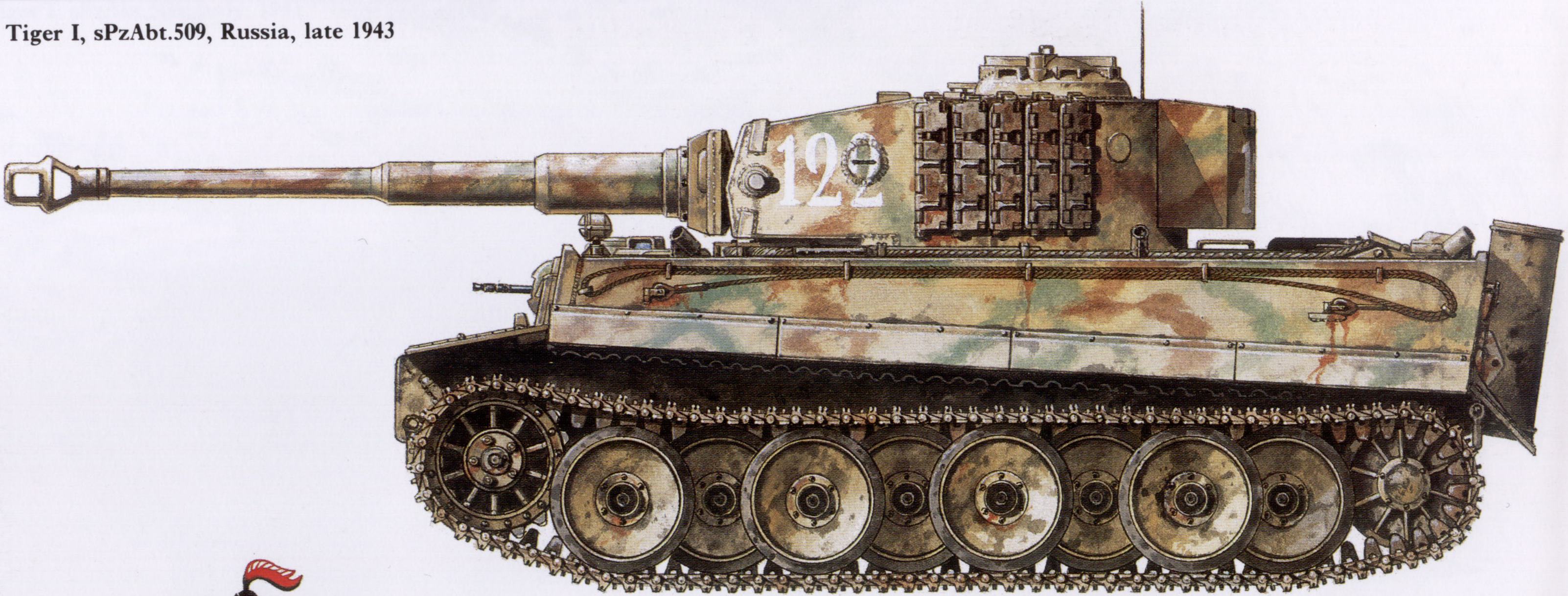
Tiger I, sPzAbt.506, Russia, 1943

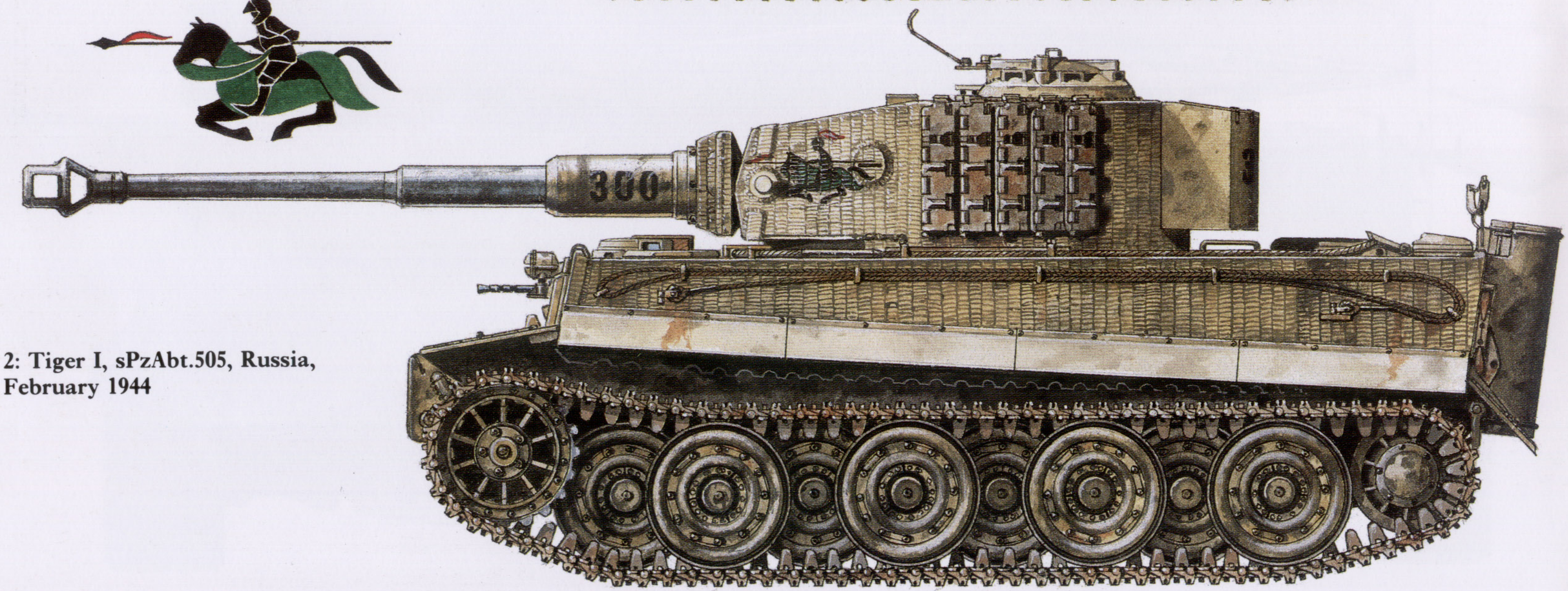


F

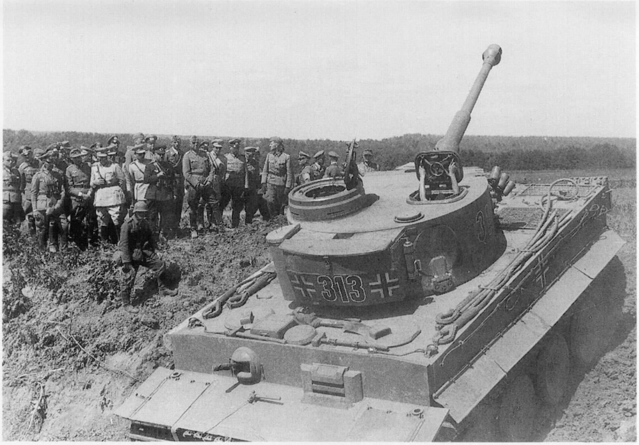
G

1: Tiger I, sPzAbt.509, Russia, late 1943





2: Tiger I, sPzAbt.505, Russia, February 1944



The 503rd demonstrated one of their Tiger before a Turkish Military delegation. The double Balkankreuz on the rear of the turret bin was one of the identifying markings of the 503rd during 1943. (Bundesarchiv)

The first five replacement Tigers were shipped from the ordnance depot on 23 September 1943; twelve more were shipped in April 1944 (six on 8 April, and six on the 14 April) and another 12 on 18 May. Decimated during the Russian summer offensive, the 505th was ordered to return to Germany to refit with Tiger II on 11 July 1944.

Schwere Heeres Panzer Abteilung 506

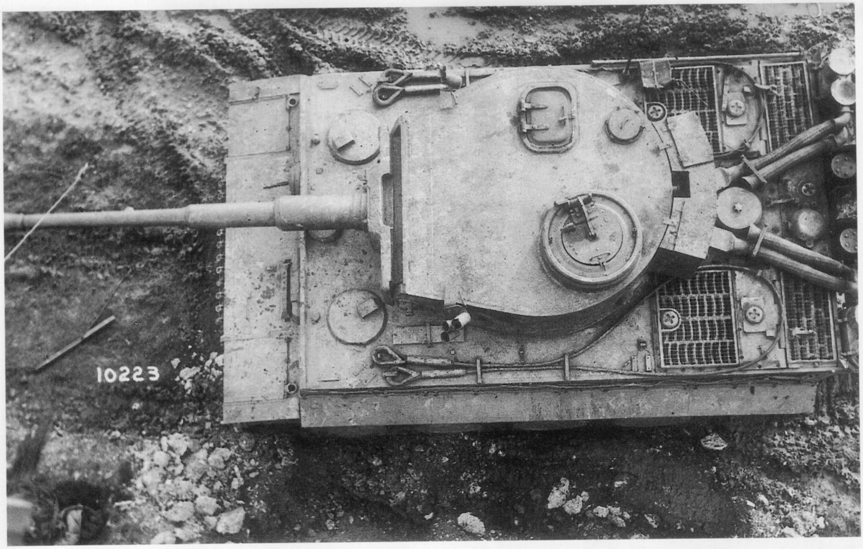
Formed on 20 July 1943, the 506th was the first independent battalion to be created with an original complement of 45 Tigers which it received in August 1943,. It left by rail for the Eastern Front on 12 September and reached Heeres Gruppe Süd on 19 and 20 September 1943. The first 12 replacements were shipped on 29/30 January 1944 followed by five more Tigers on 10 February 1944. The 506th was completely refitted with 45 new Tigers, the last arriving at the unit on 8 April 1944. Their last six replacement Tigers were shipped on 22 July 1944 and on 15 August 1944, the 506th was ordered to refit with the Tiger II.

Schwere Heeres Panzer Abteilung 507

The 507th, formed on 23 September 1943, was equipped with 45 Tigers between 23 December 1943 and 25 February 1944. Transferred to the Eastern Front in March 1944, the 507th received seven replacement Tigers before the end of the month and a further 12 in April, eight in July, six in August, ten in November and one final Tiger in December 1944. Overstrength at 55, the 507th met the Russian winter offensive on 14 January 1945 and by 1 February 1945 had only seven Tigers left, none of which operational. On 6 February 1945, the 507th was ordered to return to Germany to refit with the Tiger II.

Schwere Heeres Panzer Abteilung 508

Issued with 45 Tigers in December 1943 and January 1944, the 508th was ordered to Italy to attack the Allied bridgehead at Anzio. Unloaded at a railhead 200 km from the bridgehead, about 60 per cent of the Tigers suffered mechanical failures negotiating the narrow, sharply curved mountain roads. The 508th, along with other units outfitted with Panthers and Ferdinands, were repulsed mainly by the threat of naval gunfire. Five replacement Tigers were shipped from the ordnance depot on 23 March followed by six on 25 April 1944. Following the losses to the Allied drive in May and early June, the 508th received a further 27 replacement Tigers that were shipped from the ordnance depot on 3 and



This Tiger (Fgst Nr 250112) was issued to 1.Kompanie of the 504th in February 1943. The unit was shipped to Tunisia in March and April 1943 where this Tiger was captured by the English forces, after the turret had been jammed. This photograph shows the asymmetric shape of the turret where the right hand side armour is angled more towards the centre mounted gun. Apparently, the left side was designed to be wider to accommodate the sight and the gunner. (Warpics)

5 June 1944. On 4 February 1945, the 508th gave their remaining 15 Tigers to the 504th and returned to Germany for outfitting with the Tiger II.

Schwere Heeres Panzer Abteilung 509

Formed on 9 September 1943, the 509th was issued 45 Tigers the last of which arrived on 30 September 1943. Ordered to the Eastern Front on 28 October, the first elements unloaded on 3 November. The first eight replacements were shipped to the unit on 2 and 5 February 1944 and a major reinforcement occurred between 20 May and 1 June when the unit was sent 30 Tigers. The final 12 new Tiger Is were sent by 1 August 1944, and in September the 509th returned to Germany to refit with the Tiger II.

Schwere Heeres Panzer Abteilung 510

The last of the ten independent heavy tank battalions was formed on 6 June 1944, and received its 45 Tigers between 20 June and 7 July 1944. Sent to the Eastern Front in late July, six replacements were shipped to the 510th on 3 August and the 510th remained on the Eastern Front to the end of the war, having never been issued a single Tiger II.

Schwere Panzer Abteilung (FKL) 301

Panzer Abteilung 301 returned from the Eastern Front to rest and refit with Tigers to use as control vehicles for the BIV Sprengladungsträger and was organised with a headquarters and three companies each with ten Tigers. 21 Tigers were shipped from the ordnance depot between 25 August and 15 September 1944 and an additional ten were taken over from the sSS-PzAbt.103.

The 301st was first reported on the Western Front by the LXXXI Armee Korps on 6 November 1944 as having 31 Tigers (27 operational) and 66 BIV (61 operational). Four Tigers were lost before the 301st was engaged in the Ardennes Offensive and at the beginning of the attack on 16 December 1944, the 301st reported 27 Tigers available of which 12 were operational. It still had 27 Tigers of which 21 were operational on 30 December 1944. The 301st remained on the Western Front until the end of the war.

Schwere Panzer Kompanie (FKL) 316

Pz.Kp.(FKL) 316 was issued ten Tiger Is in September 1943 (three shipped on September 30 and seven on October 8) and five Tiger IIs in March 1944, which they did not use in combat. Attached to the Panzer Lehr Division and engaged in Normandy, the 316th had six out of eight Tigers operational on 1 June, and three Tigers undergoing repair on 1 July 1944. By 1 August 1944, the 316th was no longer with the Panzer Lehr Division.

13.Kompanie/Panzer Regiment Grossdeutschland

A schwere Kompanie was formed for Panzer Regiment Grossdeutschland on 13 January 1943 and received a total of nine Tigers and ten PzKpfw IIIs. The company was sent to the Eastern Front in February 1943 and in May received six additional Tigers to upgrade it to the new organisation. On 1 July 1943 the unit was renamed as the 9.Kompanie/ Panzer Regiment Grossdeutschland and at the start of the Kursk offensive on 5 July, the company had 14 out of 15 Tigers operational. None of these Tigers were lost during the battle.

Two Tigers of the schwere Kompanie/SS-Panzer Regiment 2 'Das Reich' which received 10 Tigers in December 1942 and January 1943. The first Tiger has the tactical number S33 and the second with S13 the subject of one of the colour plates. Note the repaired battle damage just above the Balkenkreuz on S13. (Bundesarchiv)

III.Abteilung/Panzer Regiment Grosdeutschland

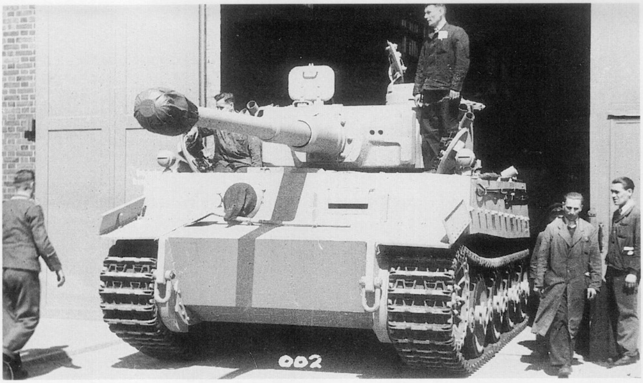
An entire heavy tank battalion of three companies with 45 Tigers was created for Panzer Grenadier Division Grossdeutschland as the III.Abteilung/ Panzer Regiment Grossdeutschland. Its first company (9.Kompanie) was provided by the old 13.Kompanie; the second and third companies (10. and 11.Kompanie) were the former 3.Kompanie/s. H.Pz.Abt.501; and 3.Kompanie/s. H.Pz.Abt.504 respectively. The Stab, 10. and 11.Kompanien joined the 9.Kompanie at the front on 14 August 1943 by which time they had received 31 Tigers.

The first six replacements arrived at the front on 26 August. Further replacements followed in 1944 with ten in February, six in March, six in April, 14 in May, six in June, 12 in July, six in October and a final four in December. The battalion remained on the Eastern Front without being relieved or refitted until the final surrender.

Schwere Panzer Kompanie Hummel

The Allied drive out of Normandy decimated the units trapped in the 'Falaise Gap' and the remnants trying to cross the Seine river. With open space all the way to Berlin, the schwere Panzer Kompanie Einsatz Dunkirchen was hastily formed by the schwere Panzer Ersatz und Ausbildungs Abteilung 500 at the training grounds near Paderborn. This unit with 14 Tigers was sent west on 19 September to stop the British spearhead at Arnhem in Holland. It was remaned the next dat, s.Pz.Kp Hummel and continued to fight on the Western Front after it was incorporated into sPzAbt.506 as the 4.Kompanie on 8 December 1944.

Training and research/development units had originally received a total of 49 Tiger I for training and ten Tiger Is for testing. As Germany's position continued to deteriorate, additional units were thrown together and given these worn out Tigers in a last ditch effort. Amongst these units were: s.Pz.Kp.Paderborn with 15 Tigers on 21 October 1944, Pz.Kp. Panther with three Tigers (30 January 1945), Ersatz Brigade Grossdeutschland with two Tigers (31 January 1945), and Pz.Abt.500 Paderborn with 17 Tigers (2 April 1945).



In early May 1943, this new Tiger left the assembly line at the Henschel works in Kassel. The loader's periscope, spare track links on the turret and the Nebelwurfgeräte (smoke candle dischargers) are typical for Tigers produced between March and June 1943. The Tiger is painted in a base coat of Dunkelgelb (dark yellow) (RAL 7028). The outer set of road wheels have not been mounted and narrow transport track is fitted for rail transport. (Author)

Panzer Abteilung Kummersdorf

Having received the last five Tiger Is to be issued on 23 February 1945 this unit joined the makeshift Panzer Division Muncheberg in an attempt to halt the Russian advance. Absorbing remnants from other units it reported having 13 Tigers of which ten were operational on 15 April 1945.

Tigergruppe Meyer

Before the loss of Sicily, eight Tigers were shipped from the ordnance depot on 28 July 1943, to outfit an independent unit destined for Italy. Known as Tigergruppe Meyer, this small unit with its eight Tigers was attached to Pz.Jg.Abt.46 between August and November 1943 and by 4 February 1944, renamed Tigergruppe Schwebbach was attached to the LXXVI Panzer Korps to attack the bridgehead created by the Allied landing at Anzio. None of the Tigers remained operational, on 12 February but seven of the eight were available by 15 February for the planned attacks. On 11 March 1944, the surviving crews and Tigers of Tigergruppe Schwebbach were incorporated into sPzAbt.508.

Schwere Panzer Kompanien (SS-Pz.Rgt. 1, 2 and 3)

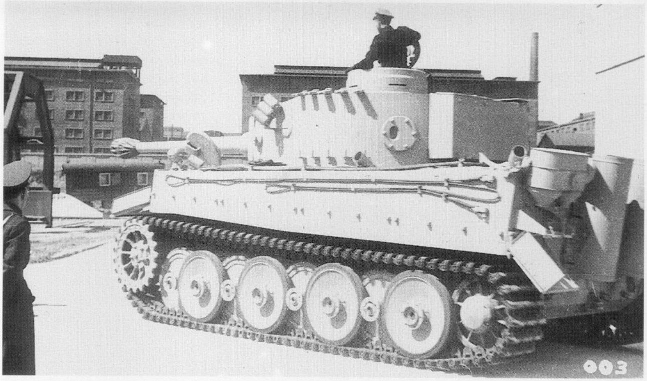
Effective 15 November 1942, three schwere Panzer Kompanien were established, one each for the SS-Panzer Regiments 1, 2 and 3. Each Kompanie was to have nine Tigers and ten PzKpfw III. and 28 Tigers and 30 PzKpfw III were issued in December 1942 and January 1943. Sent to the Eastern Front, all three companies took part in tManstein's counter offensive to retake Kharkov in February March 1943 in which they lost three Tigers.

An order dated 22 April 1943, authorised these three companies to be upgraded to 14 Tigers and by this same order the three companies became an organic part of the schwere Panzer Abteilung of the I.SS-Panzer Korps. However, the three scompanies remained with their Regiments at the front. In May 1943, 17 Tigers were shipped to the front bringing the total to 13 with the 13.Kp/SS-Pz.Rgt.1, 14 with the s.Kp./SS-Pz.Rgt.2, and 15 with the 9.Kp./SS-Pz.Rgt.3.

Of these 42 Tigers, 35 were operational at the start of the Kursk offensive on 5 July 1943 of which three were lost, one from each company. Five replacements arrived for the 13.Kompanie/SS-Panzer Regiment 1 on 25 July 1943 before it was ordered to Italy with Panzer Grenadier Division LSSAH. Before leaving on 28 July 1943, nine Tigers were transferred to s.Kp. /SS-Pz.Rgt.2 and eight Tigers to 9.Kp./SS-Pz.Rgt.3.

The s.Kp./SS-Pz.Rgt.2 remained on the Eastern Front, receiving five Tigers in September 1943 and a further five in January 1944. Having lost their last Tiger, the unit was ordered to return to the West on 14 April 1944.

The 9.Kp./SS-Pz.Rgt.3 also remained in the East and received five replacement Tigers in 20 September



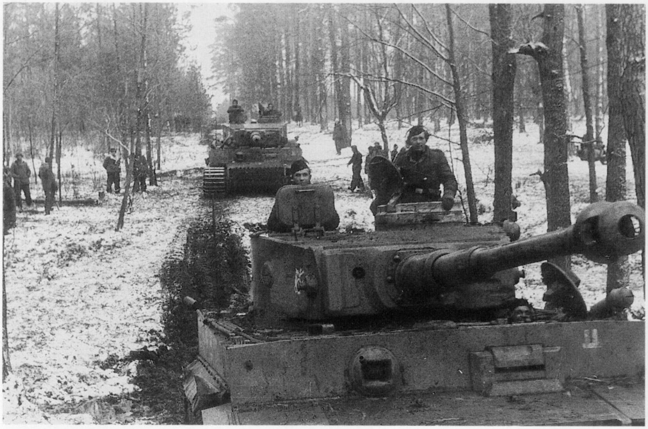
Rear side view of this same Tiger at the Henschel factory in Kassel. (Author)

1943. Originally ordered to return to the West to refit as part of the parent schwere SS-Panzer Abteilung 101, the order was rescinded by Hitler and 9.Kompanie was then refitted with ten Tigers in May 1944. The final five replacement Tigers were shipped from the ordnance depot on 26 July 1944.

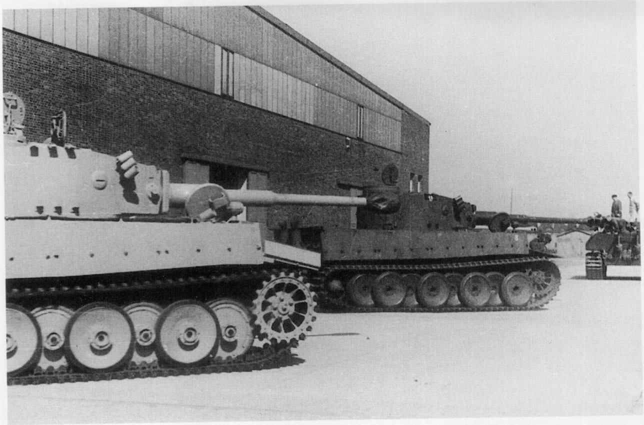
Schwere SS-Panzer Abteilung 101

By an order on 19 July 1943, a schwere Panzer Abteilung was formed for I.SS-Panzer Korps. Two new heavy companies were to be created and 13.Kompanie of SS-Panzer Regiment 1 was to be incorporated as the third company.

Having been pulled out of Russia in response to the landings in Sicily in July 1943, Panzer Grenadier Division LSSAH was refitted and sent to Italy in August 1944. Attached to the division were elements of the newly formed schwere SS Panzer Abteilung of the I.SS Panzer Korps with 27 Tigers that had been issued in July 1943. As a result of Italy's defection, LSSAH remained in northern Italy until mid-October.



This Tiger is one of the 5 replacements shipped to the 13.Kompanie/SS-Panzer Regiment 'LSSAH' in July 1943. The periscope for the loader and the spare track link holders on the turret were features introduced from March 1943. When the 'LSSAH' returned to the West in July 1943 this Tiger was transferred to 'Das Reich' whose symbol is on the left side of the superstructure front. (Bundesarchiv)



Another new Tiger, the 8th scheduled for completion in May 1943, still has the red oxide primer undercoat. In the distance is a Panther chassis also in red oxide primer. Panthers were assembled alongside Tigers at Henschel for a period in 1943. (Author)

The unit was then transferred back to the Eastern Front where it was renamed schwere SS-Panzer Abteilung 101.

The 1. and 2.Kompanie went east with 'LSSAH' but the rest of the battalion remained behind at a training ground. Eleven Tigers were received in February 1944 and on 4 April 1944, the remnants of Panzer Division 'LSSAH' were ordered to return to the West to refit.

In the interim, the rest of sSS-PzAbt.101 had received 19 Tigers., ten being shipped on 29 October 1943, six on 11 January and two on 14 January 1944. The nineteenth Tiger was provided as a gift from the Japanese who had purchased one originally shipped from the depot on 16 October 1943. After the return of the rest of the battalion from the Eastern Front, a further 26 Tigers were received during April 1944.

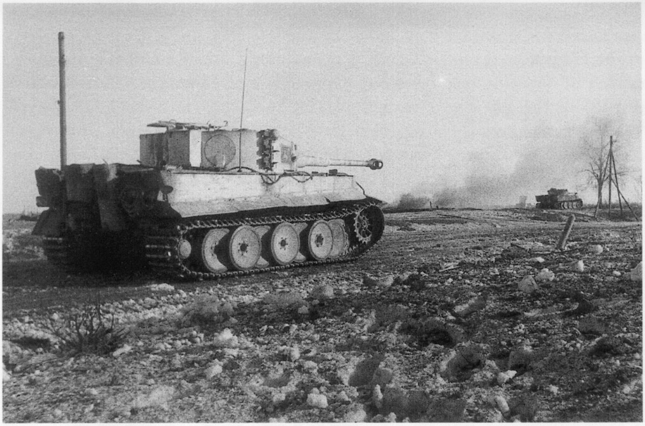
The lead elements of the 101st reached the front in Normandy on 12 June 1944, six days after the Allied landings. By the end of June, the 1.Kompanie had lost 15 of its 45 Tigers and was pulled out in July to refit with the Tiger II. The 101st still had 25 Tigers of which 21 were operational on 7 August 1944 but these were all lost during the retreat in August, the remnants of the 101st being ordered back to the training grounds to rest and refit with the Tiger II on 9 September 1944.

Schwere SS-Panzer Abteilung 102

Originally created in April 1943 as the schwere Panzer Abteilung for the I.SS-Panzer Korps, three Tiger companies were deployed at the front but the headquarters remained behind at the training grounds. On 1 June 1943, the I.SS-Panzer Korps was renamed to the II.SS-Panzer Korps and the 13.Kp./SS-Pz.Rgt.1 was lost to the sSS-PzAbt. for the new I.SS-Panzer Korps. A new third Tiger company was created and on 22 October 1943, the unit was renamed schwere SS-Panzer Abteilung 102.

When the 9.Kompanie/SS-Panzer Regiment 3 was ordered to remain with the 3.SS-Panzer Division 'Totenkopf' in the east, the 102nd was left with two new companies with no combat experience and the decimated remains of the schwere Kompanie of SS-Panzer Regiment 2 'Das Reich' which returned from the front in April. Six Tigers were shipped from the ordnance depot on 21 April 1944, followed by another 39 between 20 and 29 May 1944.

Ordered to the front in Normandy, the first seven trains unloaded west of Paris on 27 June 1944, however, the threat of attacks from the fighter-bombers was sufficient to delay their arrival at the front until 7 July. On 20 July, the 102nd still had 42 Tigers of which 17 were operational. No fewer than 30 operational Tigers were reported

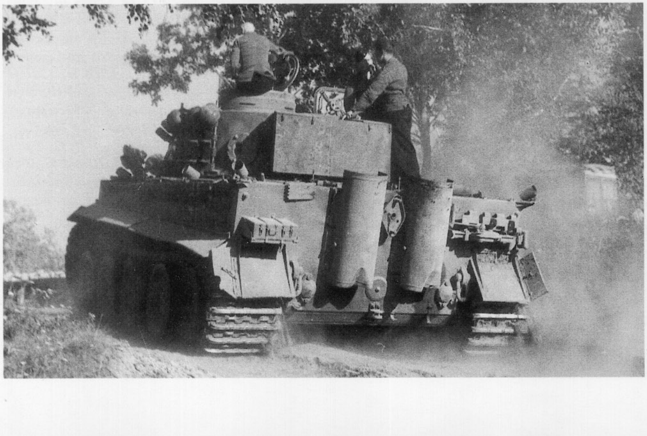


Starting in July 1943 the new turret was introduced. The Prismen-spiegelkuppel (Commander's cupola) was fitted. A M.P. Stopfen (plug type machine pistol port) replaced the M.P. Klappe on the left rear and the extractor fan was moved to an armoured housing on the centre line over the 8.8cm KwK breech. This Tiger was built in July or August 1943 so does not have Zimmerit anti-magnetic coating. (Bundesarchiv)

on 30 July and 21 on 8 August 1944 but all these had been lost by 7 September 1944 and the unit was ordered to return to the training grounds to rest and refit with the Tiger II. The six Tigers that had been shipped as replacements on 22 August 1944 never reached the 102nd but were handed over to sSS-PzAbt.103.

Schwere SS-Panzer Abteilung 103

The s.SS-Panzer Abteilung 103 was originally formed on 1 July 1943 as the II.Abt./SS-Pz.Rgt. 11 and sent to Yugoslavia to fight as infantry, however at the end of November, the battalion was converted to the sSS-PzAbt.103. Isssued six Tigers in February for training, the 103rd was ordered to give them to another unit in March 1944. Another six Tiger Is were arrived at the training grounds on 26 May and four more in August. On 20 October, all ten Tiger I were given to sPzAbt.(FKL)301 and the 103rd was outfitted with the Tiger II before being ordered to the Eastern Front.



Rear view of a Tiger produced in March or April 1943. The single hole in the plate for the crank starter, between the exhaust shows that the Maybach HL210P45 motor is still fitted. (Bundesarchiv)

Hungary

On 22 July 1944, three Tiger Is left the ordnance depot by rail for delivery to the Hungarian Army. In addition, an unknown number of Tiger Is were acquired from the s.H.Pz.Abt.503 or the 509 who had been assigned to train the Hungarian crews.

Operational status

The operational status of the Tiger I on the Eastern Front presented in Table 5 reflects its fortunes from its debut in August 1942. Immediately before the Kursk offensive on 1 July 1943, a total of 147 Tigers had been assembled on the Eastern Front of which a record 84 percent were operational. A peak of 301 Tiger Is were available on 1 June 1944 of which 80 per cent were operational. At this same time 98 Tiger Is were available with SS 101, SS 102 and Pz.Kp.(FKL)316 that would soon be committed to action in France and 76 Tiger Is were available with the 504th and 508th that would soon be committed to action in Italy. Massive losses were registered following the onslaught of the major offensive launched by the Russians on 22 June 1944 (their 3rd anniversary in the war).

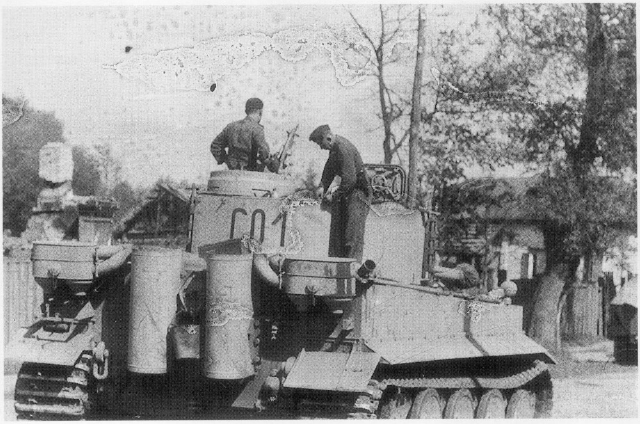
The Tiger Is success in combat in the East is reflected in reports from the 503rd and 506th s,Pz.Abt. From the beginning of Kursk on 5 July until 21 September 1943, the 503rd claimed to have destroyed 501 enemy tanks (mostly T-34s, but including small numbers of KWIs, KWIIs, Churchills and Shermans), 388 anti-tank guns (mostly 76.2 mm anti-tank and anti-aircraft guns), 79 artillery pieces and seven aircraft. During this same period the 503rd lost 18 Tigers (only seven burnt out) and their maintenance company reported that they had repaired 240 Tigers.

During their first period in action between 20 September 1943 and 10 January 1944, the 506th reported that they had destroyed 213 tanks and 194 anti-tank guns and lost 19 Tigers. This kill ratio, at greater than 10 to 1 was not sustainable during conditions encountered in 1944 and 1945.

THE PLATES

Plate A1: ***Tiger I, 1.Kompanie/schwere Heeres Panzer Abteilung 502, near Leningrad, January 1943***

Four Tigers of the 1.Kompanie/schwere Heeres Panzer Abteilung 502 were sent to the front near Leningrad and were the first to see action when committed near Mga on 29 August 1942. The rest of the 1.Kompanie of the 502nd arrived at the



The 11.Kompanie/Panzer Regiment 'Grossdeutschland' received 14 Tigers in early July 1943. The two holes in the alignment plate for the cranked inertia starter show that a Maybach HL230P45 motor is fitted and the Fgst Nr is above 250251. The three companies of the III. Abteilung/Pz.Rgt.'GD' used the letters A, B and C as the first digit of their tactical numbers. (Bundesarchiv)

Table 5: Tiger I on the Eastern Front

Month & Year	*Available on first of month*	*Operational on first of month*	*New arrivals during the month*	*Losses during the month*
Aug '42	0	0	4	0
Sep '42	4	2	5	0
Oct '42	9	7	0	0
Nov '42	9	1	0	1
Dec '42	8	6	0	0
Jan '43	8	7	39	11
Feb '43	36	17	34	3
Mar '43	67	28	0	5
Apr '43	62	22	40	0
May '43	102	87	27	0
Jun '43	129	108	18	0
Jul '43	147	123	50	18
Aug '43	179	41	43	32
Sep '43	190	46	61	30
Oct '43	221	41	32	32
Nov '43	221	81	92	29
Dec '43	284	102	0	73
Jan '44	211	89	72	41
Feb '44	242	130	84	45
Mar '44	281	131	83	105
Apr '44	259	121	74	36
May '44	297	143	43	39
Jun '44	301	242	40	108
Jul '44	233	189	14	108
Aug '44	139	51	86	33

front on 25 September bringing the total number of Panzers up to nine Tigers along with nine PzKpfw III (5 cm KwK L/60) and nine PzKpfw III (7.5 cm) Ausf.N. All of these Panzers were initially painted Feldgrau (Panzer grey).

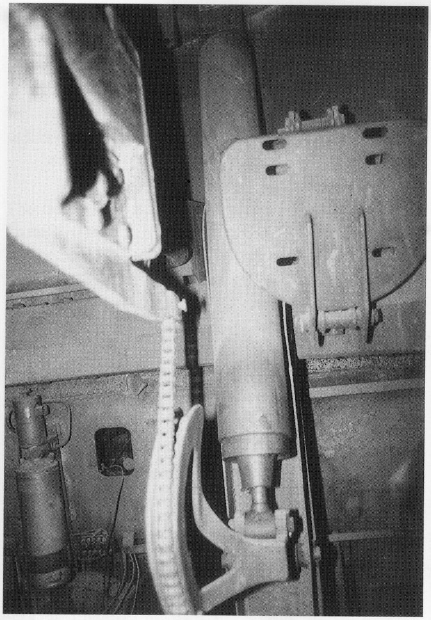
This Tiger I, tactical number 100, belonging to the company commander, was the first Tiger captured intact by the Russians in January 1943. A large reproduction of the 502nd emblem, a Mammut (mammoth), had been painted on the rear of the turret of this Tiger. The stowage bin on the turret side was made and fitted by the troops at the front.

The first nine Tigers issued to the 502nd had Fgst Nr 250002 through 250010. Produced in August and September 1942, these Tigers never possessed features that are commonly expected on a Tiger I. These Tigers did not have the removable mud guards on the superstructure sides, a track replacement cable on the left superstructure side, the tool box at the left rear, or the hinged mud guards at the front and rear. However, they were unique in having an early track design for the Kgs 63/725/120 Geländeketten where the right track was a mirror image of the left track.

Plate A2: *Tiger I, schwere Heeres Panzer Abteilung 501, Tunisia, November 1942*

The schwere Heeres Panzer Abteilung 501 was one of the two Tiger units that had been promised to Rommel and prepared for tropical deployment. Originally outfitted with the Porsche-Tigers, the 501st was issued Henschel-Tigers due to the delays and cancellation of the Porsche-Tiger. The 501st was originally outfitted with 20 Tigers and 25 PzKpfw III (7.5 cm) Ausf.N which were shipped to Tunisia between November 1942 and January 1943.

This vehicle, Tiger I Fgst Nr 250012, was one of the first two Tigers issued to the 501st in September 1942. Initially delivered painted in Feldgrau (Panzer grey) this Tiger was modified for frontline service. The fasteners for mudguards were welded to the superstructure sides and a



One of the most noticeable changes in the interior of the new turret was the relocation of the counter balance spring from the right hand front side to a position behind the commander's seat. As can be seen from this photograph, taken facing towards the rear, the counter balance spring is activated by a motorcycle type chain attached to the underside of the gun shield. (Author)

stowage bin fitted on the turret rear and to deal with the tropical climate, Feifel air filters and the connecting hoses were fitted. The 501st also made their own distinctive modification with sheet metal guards being fitted around the exhaust. The Bosch headlights have been moved from on top to mountings on the front of the superstructure, a feature typical of 1.Kompanie vehicles. Tigers shipped to Tunisia were initially given a very thin coat of olive green paint sprayed over the base Feldgrau. As the second tank of the first platoon of the first company, it had tactical number '112' painted in Feldgrau outlined in white on both turret sides.

Plate B: *Tiger I, schwere Panzer Kompanie, SS-Panzer Regiment 2 'Das Reich', Russia, 1943*

The Tigers of the schwere Panzer Kompanie/SS-Panzer Regiment 2 were identified through their unique tactical numbering system consisting of the letter 'S' followed by numbers designating the platoon and position within the platoon. This schwere Panzer Kompanie had originally been issued 10 Tiger I and 10 PzKpfw III in December 1942 and January 1943. Two of these ten Tigers were completed in December 1942 (Fgst Nr 250049 and 250076), the rest (in the Fgst Nr range from 250077 to 250092) were completed in early January 1943.

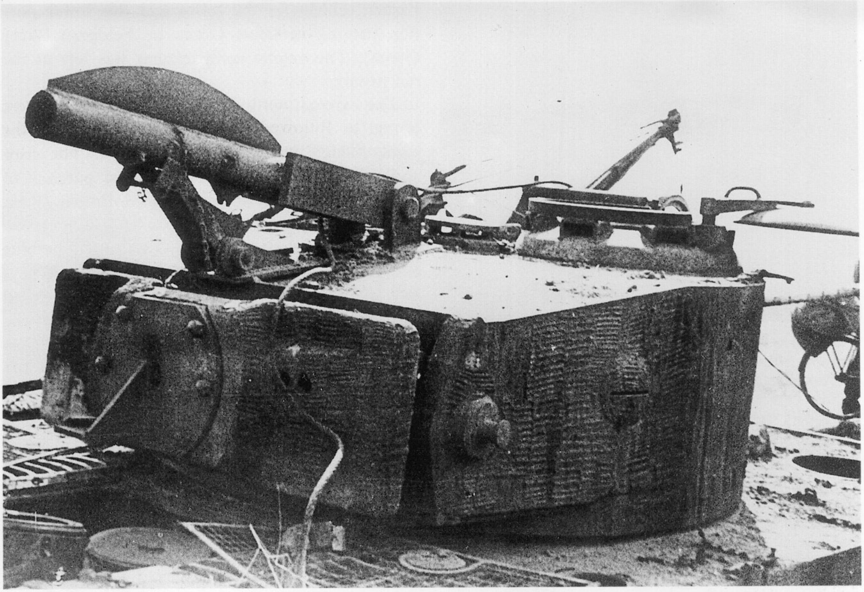
This vehicle is one of the original ten Tigers and carries tactical number 'S13'. It has the five S-Minenwerfer mounted on the deck and still has the Fahrerfernrohre (driver's periscopes) with the apertures in the driver's front plate.

This Tiger left the factory with a base coat of Feldgrau. but before July 1943, 'Das Reich' repainted their Panzers with tan or green camouflage paint. For the Kursk offenive, 'Das Reich' was ordered to use a new divisional sign, which was stencilled on the driver's front plate and on the rear mudguard. It was to be painted in white when the base coat of paint was green and in black when the base coat was tan. A 'Gnome' was chosen as the emblem for the schwere Panzer Kompanie, or possibly the entire SS-Panzer Regiment 2, and stencilled on the turret sides.

Plate C: *Tiger I, schwere Heeres Panzer Abteilung 502, Russia, 1943*

During mid-1943 the Tiger Is of the 3.Kompanie/schwere Heeres Panzer Abteilung 502 could be distinguished by the black tactical numbers repeated on the turret sides, rear of the turret bin and on the superstructure sides. The Balkankreuz was larger than normal and further to the rear on the sides of the engine compartment. The Mammet, emblem of the 502nd, was stencilled on the driver's front plate on only some of the Tigers.

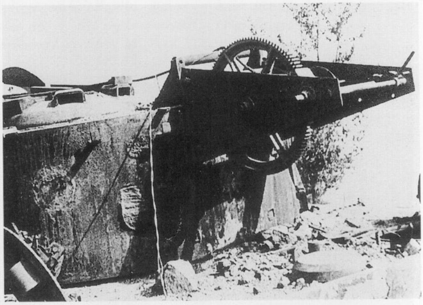
Between 19 and 26 May 1943 31 Tiger Is (Fgst Nr range from 250196 to 250269) were shipped by rail for the Stab (headquarters), 2.Kompanie and 3.Kompanie of the 502nd from the ordnance depot.



The Tiger was far too valuable a fighting vehicle. During its production life it was not converted for other purposes. The Schwere Heeres Panzer Abteilung 508 was outfitted with 45 Tigers in December 1943 and January 1944 and ordered to Italy to attack the Anzio bridgehead.

The 508th modified one of their Tiger with a rig capable of placing charges. When this Tiger was found abandoned by Allied troops it was assumed to be a Recovery vehicle because of the jib and winch gear on the turret roof. (Tank Museum, Bovington)

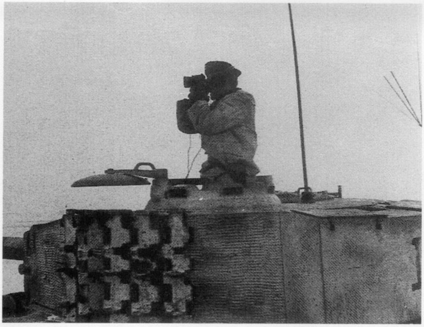
They had received a base coat of RAL 7028 Dark Yellow paint applied at the factory over the red oxide primer and this Tiger with tactical number '311' (Fgst Nr 250253) was oversprayed with camouflage colours by the Werkstattkompanie (maintenance company) of the 502nd using an air compressor.



Detail of the winch attached to the turret rear by the 508th. This Tiger was produced by January 1944 as can be seen by the welded plug in place of the M.P. Stopfen in the turret wall beneath the commander's cupola. (Tank Museum, Bovington)

Plate D: *Tiger I, schwere SS Panzer Abteilung 101, Normandy, 1944*

This Tiger I was produced after June 1944 and therefore, features all of the final changes incorporated in the series. The fighting compartment was painted in Elfenbein (Ivory) down to the level of the bottom of the sponson. Below this level no paint was applied over the red primer undercoat.



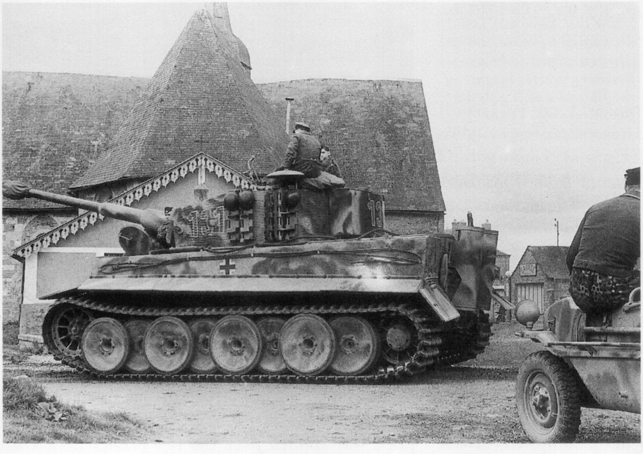
Photographs of the Panzerbefehlswagen Tiger are rare. This photographs shows a Panzerbefehlspanzer Tiger built in January February 1944. It has no M.P. Stopfen in the turret side, but the Nahverteigigungswaffe (Close in defence weapon) has not yet been fitted. The 2 meter rod antenna on the turret roof is for the FuG 5 transmitter/receiver mounted in place of the machine gun in the turret. The hole in the right hand side of the gun mantle for the machine gun was plugged and welded closed. The Sternantenne D (star antenna) in place of the normal antenna on the right hand rear deck was mounted on an large insulated mounting, protected by an armoured cylinder. This was for the more powerful FuG 8 radio equipment. (Author)

Earlier vehicles in the series had this lower portion painted in Olive Green or Feldgrau (Grey Green). The engine compartment was left in the red primer.

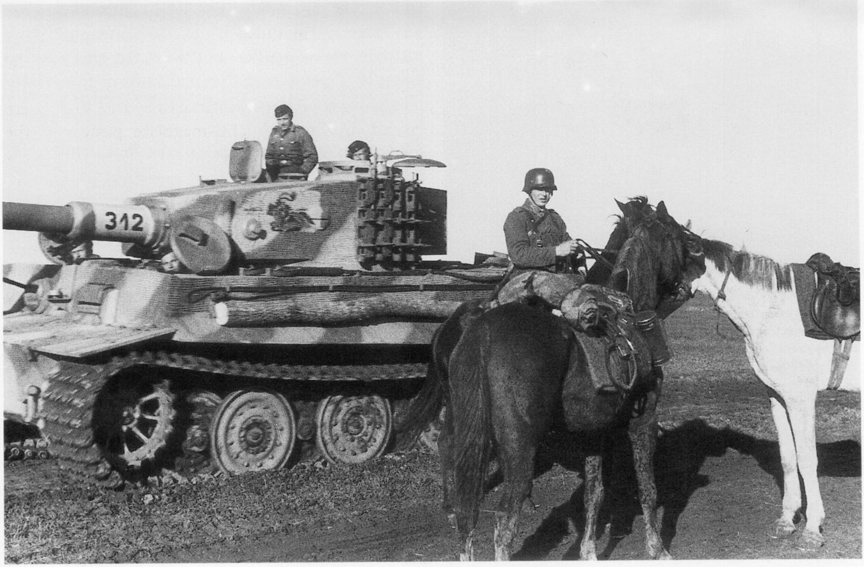
The external vertical surfaces of the Tiger were coated in Zimmerit anti-magnetic paste and the whole vehicle painted in Dark Yellow. The crew applied the camouflage stripes and patches of Dark Green (RAL 6003) and Red Brown (RAL 8017). The tactical numbers of the sSS-PzAbt. 101 (later sSS-PzAbt. 501) were painted in blue outlined in yellow. The unit insignia, crossed keys in a shield surrounded by oak leaves, was painted in white on front and rear armour of most of the tanks in the unit.

This Tiger was issued to the sSS-PzAbt.101 and served in Normandy in the battles which followed the Allied landings and the subsequent breakout in the late summer of 1944.

The cutaway drawing shows the interior of the vehicle as it appeared in late production run variants. In particular it shows how the improved counterbalance spring was moved from its original position in the front right hand side of the turret and relocated behind the gun and to the right of the commander's seat. This modification was introduced with appearance of the new turret in



One of the eight Tiger issued to the 1.Kompanie/schwere SS-Panzer Abteilung 101 in January 1944. The Heckzurrung (rear travel lock) on the right rear is just visible and the MP Stopfen (Pistol port) on the left rear of the turret has been deleted. (Bundesarchiv)

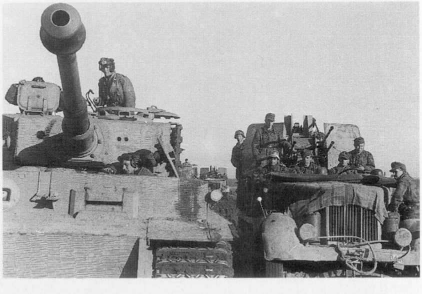


July 1943. The more powerful HL 230 P45 engine shown replaced the HL 210 P45 from May 1943. Changes were made to the stowage of items in the turret and electrical components were grouped on a panel on the right hand side of the firewall between the fighting compartment and the engine

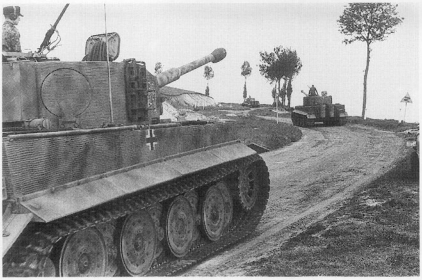
Plate E: *Tiger I, schwere Heeres Panzer Abteilung 508, Italy, 1943*

This Tiger was one of eight shipped from the ordnance depot to Tigergruppe Meyer on 28 July 1943. As was the custom in this Tigergruppe, the Tigers were given names, in this case v.Eschnapur in white on the driver's front plate, apparently getting the idea from the then popular adventure film Der Tiger von Eschnapur. The Tiger had received a base coat of RAL 7028 Dark Yellow at the factory. Camouflage colours were applied by the unit over-spraying a very diluted RAL 6003 Green and adding stripes and patches of RAL 8017 Brown. A unique feature on this Tiger are the six chevrons on the face of each track link, showing that a new set of tracks

ABOVE *Another Tiger of the 3.Kompanie/sPzAbt. 505 is also one of the replacements delivered in April or May 1944. These Tigers still have the Heckzurrung. (Bundesarchiv)*



Tiger, Fgst Nr 250829, was shipped to Schwere Heeres Panzer Abteilung 505 in a batch of replacement Tigers on the 8th April 1944. It is one of the first Tiger with the steel rimmed road wheels (from Fgst Nr 250822). It was built in February 1944. Issued to the commander of the 3.Kompanie it has tactical number 300. It is the subject of one of our colour plates. (Bundesarchiv)



Tigers, tactical numbers 224 and 223 approach the Normandy front. These Tigers were delivered in April 1944 to the 2.Kompanie/sSS-PzAbt. 101. The anti-aircraft machine gun on the commander's cupola is clear. (Bundesarchiv)

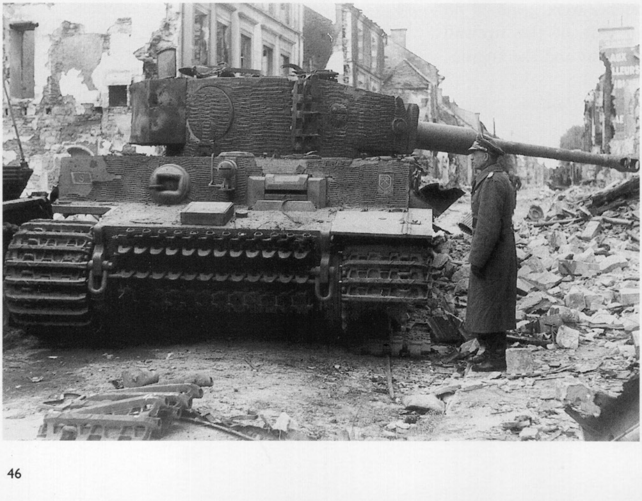
had been fitted to the tank after December 1943, the tank itself having been assembled in late June or early July 1943. This Tiger still had the original commander's cupola and two Bosch headlights mounted on the top front corners of the superstructure.

The surviving Tigers of the Tigergruppe were incorporated into schwere Heeres Panzer Abteilung 508 in March 1944. Tigers of the 508th can be identified by their unique style of tactical numbers, stencilled using white paint on the turret sides and rear of the stowage bin. The company number was large and outlined while the platoon and tank numbers were smaller and solid. In this specific case the Tiger was the second tank in the second platoon of the 1.Kompanie.

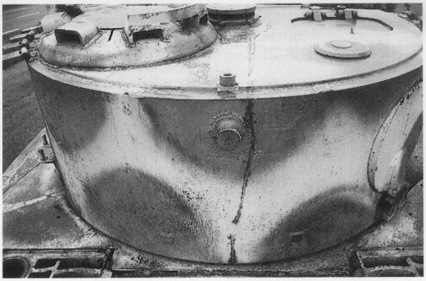
Plate F: *Tiger I, schwere Heeres Panzer Abteilung 506, Russia, 1943*

The schwere Heeres Panzer Abteilung 506, formed in July 1943, was the first to adopt the new organisation with a compliment of 45 Tigers from the very beginning. Issued their 45 Tigers in August 1943, the 506th was sent to the Eastern Front in September. Most of these Tigers had the redesigned turret with new features including the Prismenspiegelkuppel (commanders cupola with periscopes and swivel hatch). Originally delivered from the factory with a base coat of RAL 7028 Dark Yellow paint, the units were issued with water based whitewash for camouflage during the winter which was to be cleaned off during the spring thaw.

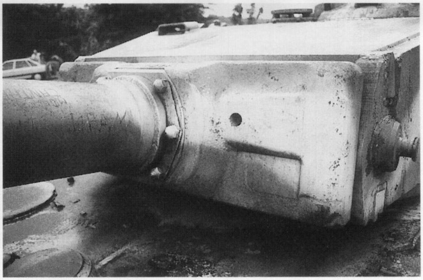
During this period, the Tigers of the 506th used tactical numbers in the range from 1 through 14 stencilled on the turrt sides to designate the position of a Tiger within the company. The colour of the number and the 'W' in the unit badge was used to identify the company. The



Tiger, tactical number 112, of the 1.Kompanie/sSS-PzAbt.101 was destroyed during the Normandy battles. Clear in the photograph are features that were introduced after December 1943 and January 1944; the cut out hull side extension which allowed free movement for the shackle, the centre mounted Bosch headlight, the small muzzlebrake, and the chevron faced track. This Tiger has the steel rimmed wheels showing that it was one of the Tigers delivered to the sSS-PzAbt.101 in April 1944. (Bundesarchiv)



Today one can see a Tiger built from June 1944, with the last visible modifications, in Vimoutiers near Lisieux in Normandy. Three Pilsen (round threaded sockets) for mounting a 2t Kran (jib boom), were mounted from June 1944. These are on the rear roof, ahead of the loader hatch and in front of the commander's cupola. The 40mm thick turret roof was introduced in March 1944. The Nahverteidigungswaffe, fitted after January 1944, is to the right over the escape hatch. Note the location for the fan on the centre line of the turret over the gun. (Author)



This Tiger, located at Vimoutiers, completed by June 1944, shows the single opening in the mantle for the monocular sight which was introduced in April 1944. This Tiger was destroyed by its crew by detonating internal charges which bulged the superstructure roof upward and dislodged the armoured ring which should surround the turret on Tigers built after February 1944. (Author)

emblem for the 506th, a Tiger holding a shield emblazoned with a white cross astride a 'W', was stencilled on the rear of the turret stowage bin.

Plate G1: *Tiger I, schwere Heeres Panzer Abteilung 509, Russia, late 1943*

Tiger I, tactical number '122', of the schwere Heeres Panzer Abteilung 509 saw action in the area of Shitomir in late 1943. To distinguish their tanks, the 509th had adopted an Italic style for stencilling the tactical numbers on the turret sides. The 509th was issued 45 Tigers between 30 August and 30 September 1943 all of which had the new Prismenspiegelkuppel (commander's cupola with periscopes and swivel hatch) and the M.P. Stopfen (pistol port plug) on the commander's side of the turret. Zimmerit anti-magnetic paste had been applied before this Tiger left the factory.

As delivered, these Tiger Is already had a base coat of RAL 7028 Dark Yellow paint and RAL 6003 Green and RAL 8017 Brown paste were issued. The paste could be diluted with a petroleum based liquid, or even water, and applied by spray painting in broad stripes and patches over the base coat of Dark Yellow.

Plate G2: *Tiger I, schwere Heeres Panzer Abteilung 505, Russia, February 1944*

The schwere Heeres Panzer Abteilung 505 had one of the most spectacular non-regulation markings. They painted their unit emblem, a knight on a charger, on both turret sides. The exact colours used for this emblem cannot be confirmed but from photographs several different colours were used that may have been changed to identify company or platoon affiliation. The tactical number, normally painted on the turret side, was stencilled onto the main gun's armoured sleeve and on the rear of the turret bin.

This particular Tiger I (Fgst Nr 250829), was completed at the factory in early February 1944, shipped by rail from the ordnance depot on 8 April, and arrived at the front for issue to the 3.Kompanie on 13 April 1944. It is one of the first Tiger Is with the gummigefederten Stahllaufrollen (rubber cushioned steel wheels) and also features the centre mounted Bosch headlight and the Heckzurrung (rear travel lock).

The Tiger did not receive any camouflage pattern over the base coat of Dark Yellow paint applied at the factory over the Zimmerit coating. Other Tigers in the 3.Kompanie were heavily oversprayed with Green and Brown camouflage.

INDEX

(References to illustrations are shown in **bold**. Plates are shown with page and caption indicators in brackets.)

11.Kompanie/Panzer Regiment 'Grossdeutschland' **40**
13.Kompanie/Panzer Regiment 'Grossdeutschland' 35, **37**

access 8
air filters 12-13, **15**
ammunition 5, 8, 16, 17, 17(table)
Anzio landings, 1944 33, 36
Ardennes offensive, 1944 34-35
armament
    accuracy 17(table), 17-18
    close defence 16
    main gun 3, 4, 5, 6-7, 9-10
    penetration 5, 17, 17(table), 19(table), 20(table)
    rear travel lock 16, **44**
    secondary 8, 9
armour 5, 8, 19
    penetration 19(table), 20(table)
    turret 8, 10, 13, 16
automotive problems 18

British guns, penetration 19-20, 20(table)
British tanks 3, 19, 19(table)

chassis 3, 4
Churchill (British tank) 19(table)
combat debut 20
command variants 11-12, **44**
commander 14
Cromwell (British tank) 19(table)

design and development 3, 4-6, 8-9
    Henschel model 6-8
drive train 5, 7, 9, 14
driver 8-9, 13

Eastern front **A1**, **B**, **C**, **F**, **G**, 21, 21-22, **22**, 23, **23**, 24, 33, 34, 35, 36, 36-37, 38, 39, 40, 41, 41(table), 42, 42-43, 46-47
engine 5, 7, 9, 14
    access 8, 15
escape hatches 13
exhausts 13, **15**

Ferdinand Panzer-Jäger 6
finish **A1**, **B**, **C**, **D**, **E**, **F**, **G**, **36**, 41, 42, 43, 44, 45, 46, 47
fording equipment 7, **8**, 15
France 40

Henschel & Sohn GmbH, Kassel 3, 5, 6-8, **36**, **37**, **38**
Hitler, Adolf (1889-1945) 3, 4, 5, 6, 10, 21
hull 4, 5, 8-9
III.Abteilung/Panzer Regiment 35

interior **D**, **42**, 43-45
Italy **E**, 24, 33-34, 36, 37, 40, 45-46
jib boom 16-17
JS 122 (Russian tank) 19, 20(table)

Krupp AG, Essen 3, 4, 5, 8, 11
Kursk offensive, 1943 23, **23**, 24, 35, 36, 40
KW series(Russian tanks) 3

Leningrad 20, 21
lights 15, 16, **21**

markings **C**, **G2**, **33**, 42, 47
modifications 12-17, **39**, 41-42, **42**, **46**, **47**

Nebelwurfgeräte 12, 14, **36**
Nibelungenwerk 4, 4-5, 6
Normandy **D**, 19, 23, 35, 38, 43-45, **46**

official designation 5, 11
operational status 40
organisation 20

Panzer Abteilung Kummersdorf 36
Panzerkampfwagen VI H (7.5cm L/70) Ausf. H2 10, **10**
Panzerkampfwagen VI H (8.8cm) (SdKfz 182) (alsPzBefWg) 11, **44**
Panzerkampfwagen VI P (8.8cm) (SdKfz 181) Ausführung P 5
Panzerkampfwagen VI (Porsche) 4
performance 5, 9, 18, 18(table)
Porsche, Stuttgart 3, 4, 5, 6
powerplant 7
production 5-6, 11-12, 13(table), **38**

radiators 8
radio operator 9
radios 11, **44**
recovery **24**
recovery vehicles (Bergefahrzeuge) 6
Rheinmetall 5, 10
road wheels 5, 7, 9, 16
Russian tanks 3, 19, 20(table)

Schwere Heeres Panzer Abteilung 501 **A2**, **9**, **14**, **15**, 20-21, **21**, 41-42
Schwere Heeres Panzer Abteilung 502 **A1**, **C**, 21-22, 40-41, 42-43
Schwere Heeres Panzer Abteilung 503 **22**, 22-23, **23**, **24**, **33**, 40
Schwere Heeres Panzer Abteilung 504 23-24, **34**, 40
Schwere Heeres Panzer Abteilung 505 **2**, 24, 33, **45**, 47
Schwere Heeres Panzer Abteilung 506 **F**, 33, 40, 46-47
Schwere Heeres Panzer Abteilung 507 33
Schwere Heeres Panzer Abteilung 508 **E**, 33-34, 40, **43**, 45-46
Schwere Heeres Panzer Abteilung 509 **G1**, 34, 47
Schwere Heeres Panzer Abteilung 510 34
Schwere Panzer Abteilung (FKL) 301 34-35
Schwere Panzer Kompanie (FKL) 316 35, 40
Schwere Panzer Kompanie Hummel 35
Schwere Panzer Kompanien (SS-Pz.Rgt. 1, 2 and 3) **B**, **35**, 36-37, 42
Schwere SS-Panzer Abteilung 101 **D**, 37-38, 40, 43-45, **44**, **46**
Schwere SS-Panzer Abteilung 102 38-39, 40
Schwere SS-Panzer Abteilung 103 39
Sherman (US tank) 19, 19(table), 19-20
Sicily 23-24, 36
sights 18, **47**
specification **D**
speed 5, 9
steering gear 7
survivability 19-20

T-34 (Russian tank) 3, 19, 20(table)
tactical numbering system 42
tactics 20
Tiger (H) 6
Tiger (P) 6
Tigergruppe Meyer 36, 45-46
Tigergruppe Schwebbach 36
Tigerkommission 6
tracks 5, 9, 12, 14, 16, **36**
training and research units 35
transmission 7, 9
trials 6, 18-19
Tunisia **A2**, 20-21, 23, 41-42
turret 3, 4-5, 6, 7, **7**, 7-8, 10, **10**, 11, **34**, **39**
    armour 8, 10, 13, 16
    modifications 13, 14, 14-15, 16, **47**
    traverse 18
    weight 10
turret ring 9-10, 16
Typ 102 6

vision devices 8, **36**
VK 36.01 **3**, **4**, 6, 7
VK 45.01 (H) 7, 7-8, **8**, 8-9, 11, 12
VK 45.01 (P) 5, **5**, 6, **6**, **7**, 8, **10**
Vorpanzer **8**, 12

Wa Prüf 6 4, 5, 6, 7, 8
Wegmann 11
weight 5, 7, 9
Western front 34-35

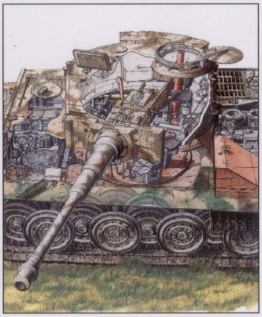
Yugoslavia 39

Zimmerit **D**, 15, 44

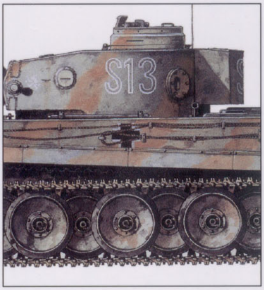
The design, development, operation and history of the machinery of warfare through the ages.

Tiger I Heavy Tank 1942–45

Full colour artwork



Cutaway artwork



Unrivalled detail

Photographs

Probably the most famous tank of World War II, the Tiger I was originally conceived in 1941 in response to the German Army's experience in fighting British tanks and anti-tank guns in Western Europe and the North African desert. Following the invasion of Russia, the appearance of the Soviet T-34 and KW tanks lent a further impetus to the programme. The Tiger's power and performance on the battlefield is emphasised by tables of relevant performance throughout the book, which clearly show the battlefield survivability of the Tiger and its superiority to many allied tank designs. This comprehensive and extremely detailed text is accompanied by a fine selection of black and white photographs showing the tank in use.

OSPREY
PUBLISHING

www.ospreypublishing.com

ISBN 1-85532-337-0

9 781855 323377